

July 12, 1938.

A. SACHS

2,123,475

MEANS FOR SIZING SHOES AND THE LIKE

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2 Sheets-Sheet 1

Fig. 1.

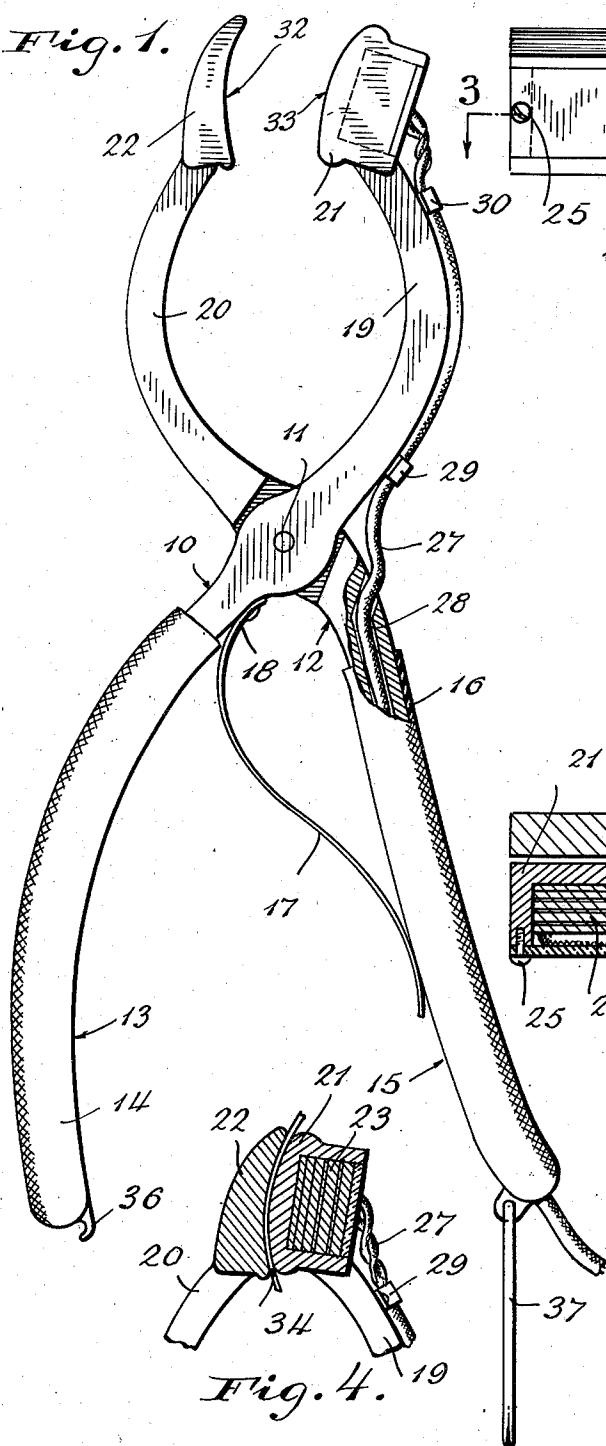
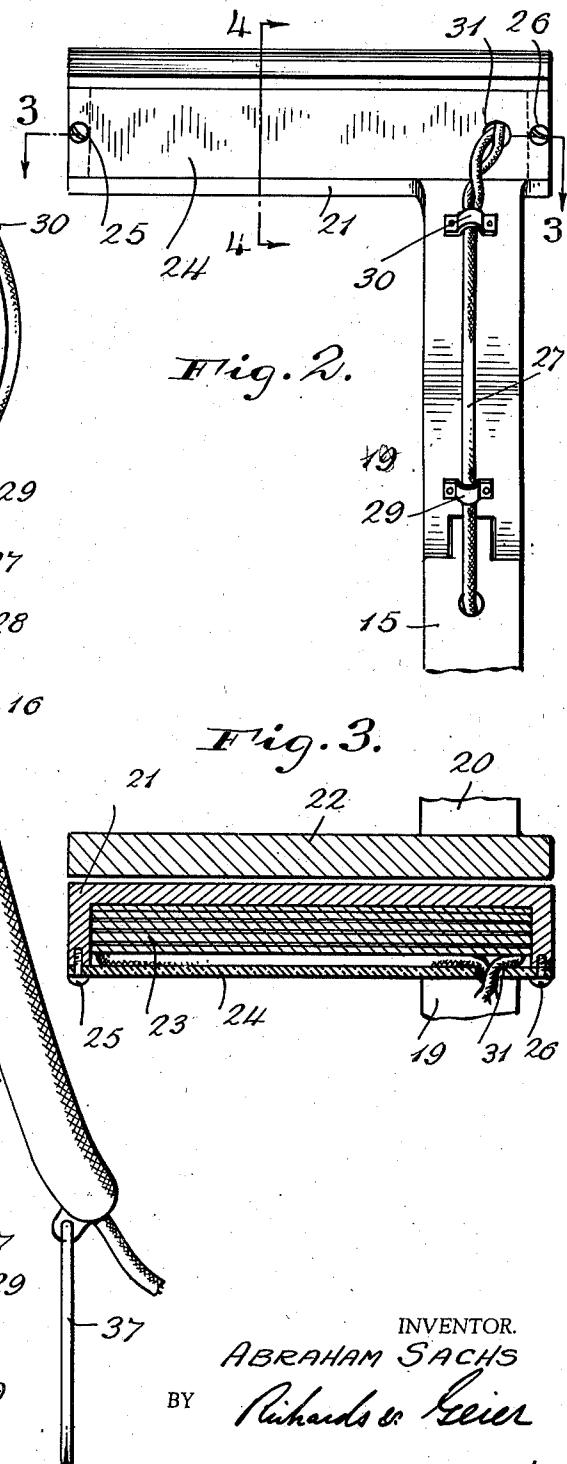


Fig. 4.



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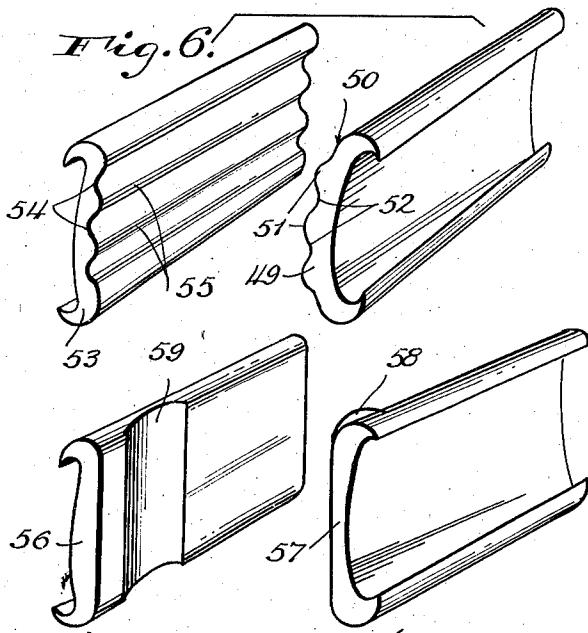
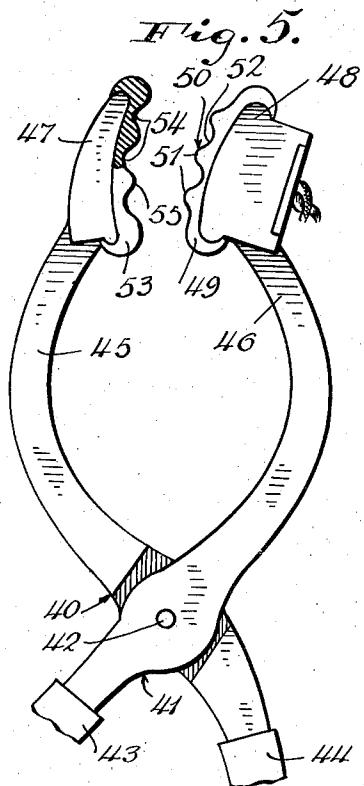
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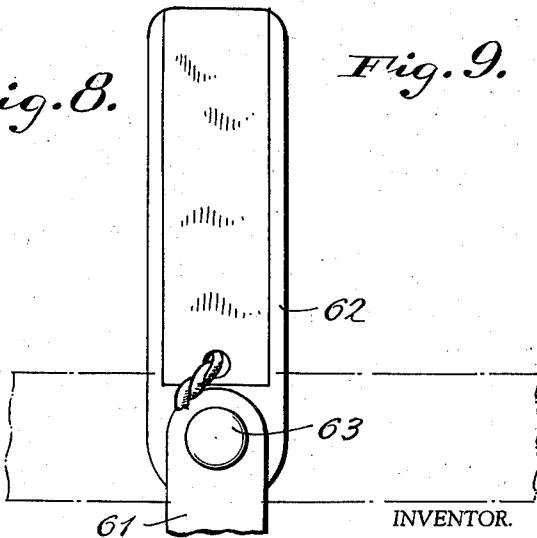
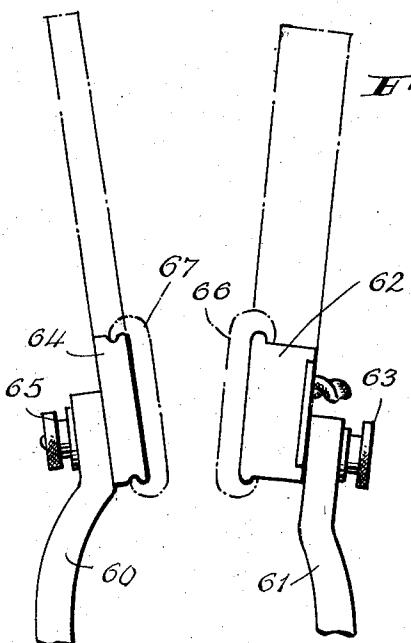
MEANS FOR SIZING SHOES AND THE LIKE

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*Fig. 7.*



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## UNITED STATES PATENT OFFICE

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## MEANS FOR SIZING SHOES AND THE LIKE

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Application February 1, 1935, Serial No. 4,425

## 1 Claim. (Cl. 12—103)

This invention relates to a method and means for sizing shoes, boots and other footwear and refers more particularly to a device by means of which various parts of the shoe leather may be 5 enlarged or shrunk in conformity with the particular shape of the wearer's foot.

Heretofore shoes were stretched by subjecting the entire leather of the shoe to uniform strain. This method of increasing the entire 10 size of the shoe is often ineffective, particularly if the foot of the wearer is deformed or irregularly shaped.

An object of the present invention is the provision of a device by means of which a certain 15 limited area of the shoe leather is subjected to shrinkage or stretching.

Another object is the provision of a simple and effective method of sizing limited areas of the shoe leather, whereby the shoe is caused to correspond to the individual shape of the wearer's 20 foot.

I have found that comparatively small areas of shoe leather may be shrunk by the successive 25 application of moisture and heat and that such areas may be stretched by the simultaneous application of heat and a pulling or stretching force to such areas.

Therefore, the above and other objects of the present invention may be realized through the 30 provision of a preferably electrical heating device having the shape of a pair of tongs which may be applied to predetermined areas of the shoe leather in order to clamp these areas, and to transmit heat thereto.

If it is desired to shrink a portion of a shoe, that portion is first moistened and then the 35 electrical heating device is applied to this portion, with the result that it is gradually and uniformly heated. The combined effect of moisture and heat will shrink this portion of the shoe 40 leather.

If the leather is to be stretched, the tong-shaped heating device is placed over the area and then the operator stretches the leather by manual force while the leather is being heated.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing preferred embodiments of the inventive 50 idea.

In the drawings:

Figure 1 shows a heating device in side elevation with some parts broken off.

Figure 2 is an end view showing a part of the heating device.

Figure 3 is a section along the line 3—3 of Figure 2.

Figure 4 is a section along the line 4—4 of Figure 2.

Figure 5 shows a heating device of a somewhat different form.

Figure 6 shows in perspective the shaping members constituting a part of the heating device shown in Figure 5.

Figure 7 illustrates in perspective shaping members of a somewhat different form.

Figure 8 shows in side elevation a heating device of a different construction.

Figure 9 is an end view of the device shown in Figure 7.

The heating device shown in Figures 1 to 4 of the drawings is similar in form to a pair of tongs and comprises an arm 10 which is connected by a pivot 11 with an arm 12. The arm 10 comprises a curved handle portion 13 which is preferably covered by a rubber sheath 14. The handle portion 15 of the member 12 is also covered by a rubber covering 16 and carries a resilient leaf spring 17 having an end 18 which is in contact with the arm 10.

The jaw portions 19 and 20 of the arms 10 and 12, respectively, are preferably arcuate in shape and carry the bars or shaping elements 21 and 22 respectively.

In the device shown in Figures 2 and 4, the bars 21 and 22 form integral parts of the arms 10 and 12 or are firmly connected to these arms.

As shown in Figure 3, the bar 21 is hollow and contains a heating element 23 consisting of a plurality of superposed electrical resistances. A cover 24 consisting of an insulating material is attached by bolts 25 and 26 to the side walls of the bar 21. The bar 21 is preferably made of an insulating material which is a good conductor of heat so that the heat generated by the heating element 23 is quickly transmitted to the exterior surfaces of the bar 21.

The electrical current is supplied to the heating element 23 by means of a conductor cord 27 which passes through the hollow tubular interior 28 of the handle 15. The cord 27 is held in place by clamps 29 and 30 carried by the end portion 19 of the member 10 and passes into the interior of the bar 21 through an opening 31 formed in the cover 24. The conducting wires of the cord 27 are connected in any suitable manner to the ends of the heating element 23.

As shown in Figure 4 the bar 22 carried by the member 12 is made of a single solid piece of material and comprises a concave surface 32 which conforms to a convex surface 33 of the bar 21. The two surfaces are situated opposite each other and come in contact with each other when the operator moves the handle portions 13 and 15 towards each other against the action of the spring 17, (Fig. 1).

The handle 13 carries a hook 36 adapted to be clamped by a ring 37 carried by the handle 15.

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If a shoe is to be smoothed it is advisable to uniformly heat the two bars 21 and 22 prior to the shaping operation by pressing them one against the other while the resistance 23 is heated by an electrical current passing through the conducting wires situated within the cord 27.

In operation the device should be preferably placed over the shoe leather in such a manner that the convex surface 33 of the bar 21 is placed 10 on the inside of the shoe while the concave surface 32 of the bar 22 is applied to the outside surface of the leather.

If it is desired to shrink a portion 34 of the shoe leather (Fig. 4) this portion is first moistened and then the device is placed over the shoe 15 so that the convex surface 33 of the bar 21 is situated on the inside of the shoe while the concave surface 32 of the bar 22 is applied to the outside portion of the shoe. Then the electrical 20 current is switched on so that the bar 21 will transmit its heat to the adjoining portions of the leather 34.

The heat applied to the moist leather will cause a shrinkage of this leather. This process 25 may be interrupted by the operator at any suitable time by releasing his grip on the handle portions 13 and 15. The spring 17 will then cause the separation of the bars 21 and 22 with the result that the supply of heat to the leather 30 34 will be immediately interrupted.

If it is desired to stretch the leather the heating device is applied over a portion 34 of the leather while this leather is comparatively dry. This portion of the leather is permitted to heat 35 for a suitable period of time and then the operation must exert a pull, lift or hoist on the heating device while the bars 21 and 22 hold the leather. This pulling force combined with the heat will stretch the leather. The operator continues to pull at the leather until the heated 40 area of the leather is stretched to the desired extent and then he releases his grip upon the handles 13 and 15 so that the bars 21 and 22 move apart and release their hold upon the 45 leather.

Due to this arrangement a portion of the shoe may be stretched or shrunk in conformity with the shape of the wearer's foot.

The heating device shown in Figures 5 and 6 50 comprises a pair of arms 40 and 41 interconnected by a pivot 42 and provided with handle portions 43 and 44. The jaw portions 45 and 46 of the arms 40 and 41, respectively, carry transverse bars 47 and 48. The bar 48 is provided 55 with a heating element situated within the hollow interior of the bar 48 and not shown in the drawings.

The bar 48 carries a shaping member 49 which is shown separately in Figure 6 of the drawings, 60 and which is removably mounted upon the bar 48. The operative surface 50 of the member 49 is adapted to come in contact with the surface of the leather and is provided with a plurality of ridges 51 situated between grooves 52. A similar removable shaping member 53 is carried 65 by the bar 47 and is provided with grooves 54 which correspond in form to the ridges 51 of the member 50. The ridges 55 of the member 53 correspond to the grooves 52 of the member 50.

This device is used in substantially the same manner as that illustrated in Figures 1 to 4 and is particularly advantageous for the purpose of

putting creases in the vamp of a shoe so that it will crease properly when worn.

The elements 53 and 49 may be removed and substituted by different ones whenever needed, for instance, by the shaping elements 53 and 57 shown in Figure 7. The element 57 comprises a projecting portion 58 which fits into a groove 59 formed in the shaping element 56. Obviously the shape and the dimensions of the projection 58 may be varied at will. When the elements 56 and 57 are applied over a piece of leather in the described manner they will stretch a certain small area of the shoe for the purpose of accommodating a hammer toe or a bunion.

In the modification shown in Figures 8 and 9, 15 the shoe shaping device comprises a pair of pivotally connected jaws 60 and 61. The jaw 61 carries a transverse bar 62 containing a heating element. The bar 62 is rotatably mounted upon the jaw 61 and may be adjusted in any desired 20 position in relation to the jaw 61 through the medium of a set screw 63. The transverse bar 64 is also pivotally and rotatably mounted upon the jaw 60 and may be held in any desired position upon the jaw 60 by means of the set screw 25 65. The transverse bars 62 and 64 are so shaped that they may carry shaping elements 66 and 67 of any desired form.

The described method and apparatus makes it possible to shrink the sides of pumps, oxfords 30 or any other makes of shoes or to smooth out or squeeze the thickness of the leather so that the leather will be thinner, smoother and more uniform. The device may be conveniently applied for the purpose of rounding or curving the leather to 35 the shape of the foot or to force the leather away from any part of the foot for instance, if the foot has a lump or callous. The heel counter or any part of the shoe may be flexed to any desired extent and the vamps of the shoes may be creased 40 so as to predetermine the location of the shoe creases or to move the already creased vamp of the shoe forward or backward to any position or location desired. The seat of the tongue of the shoe may be thinned out and a curve or hook may 45 be formed at the shoe counter to prevent the shoe from slipping at the heel.

The device is capable of reaching any desired spot on the inside or outside of the shoe for the purpose of adjusting or shaping that spot in 50 conformity of the shape of the foot.

What is claimed is:

A device for sizing shoes, comprising a plier arrangement having a pair of medially pivotally interconnected manually actuated crossing arms 55 with gripping portions adapted to be grasped by the hands of the operator on one side of the pivotal element, a pair of jaw elements by which a manually exerted pressure may be applied to the upper of the shoe, said jaw elements being connected to extensions of said arms on the opposite side of said pivotal connections from said hand gripping portions, said jaws being elongated but of such size, shape and position that they may be readily inserted into the forward part of a relatively small shoe to reach any desired spot and means connected with one of said jaw elements for heating the same, the long edges of said jaw members being provided with embossments or grooves and removable cap members received upon said embossments or grooves to enable said shoes to be subjected to varying sizing operations.

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