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F. DE CURTIS ET AL

2,279,304

METHOD OF AND APPARATUS FOR RE-SHAPING SHOES

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2 Sheets-Sheet 1

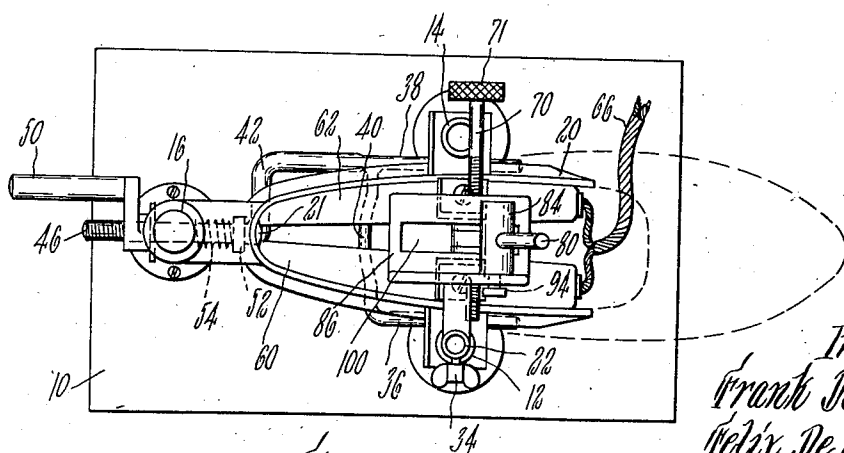
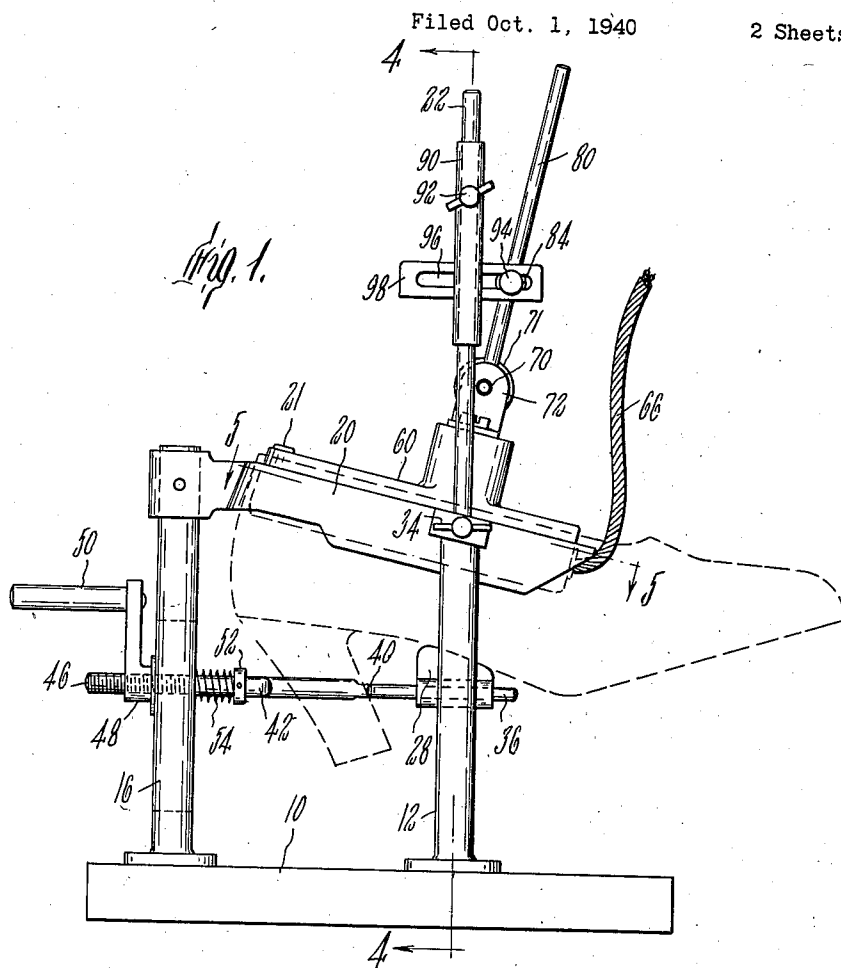


Fig. 2.

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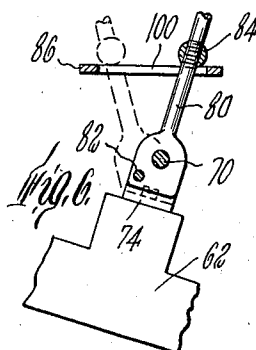
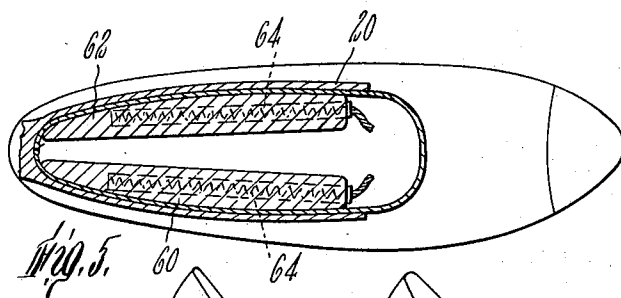
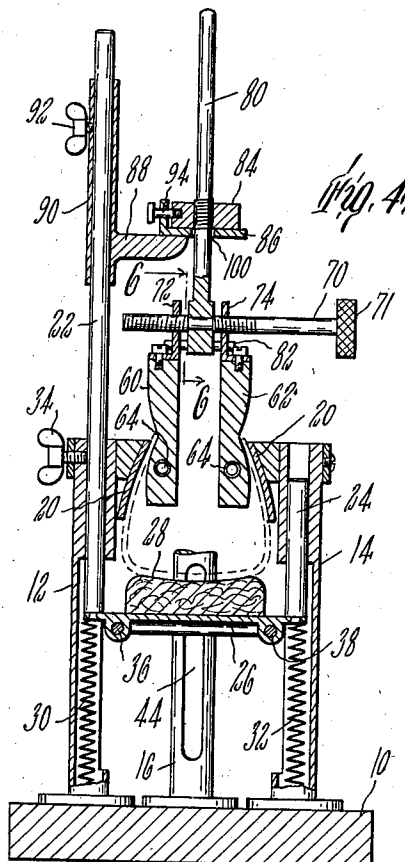
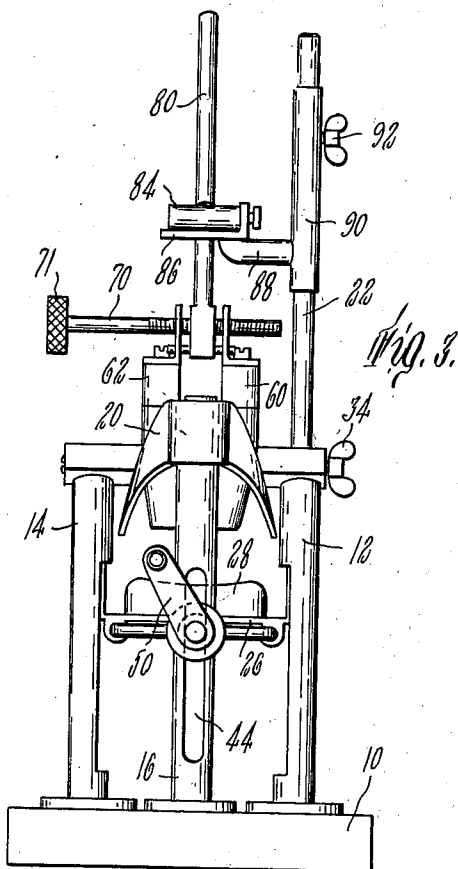
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METHOD OF AND APPARATUS FOR RE-SHAPING SHOES

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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METHOD OF AND APPARATUS FOR
RESHAPING SHOESFrank De Curtis, Queens Village, and Felix
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Application October 1, 1940, Serial No. 359,208

6 Claims. (Cl. 12-51)

This invention relates to a method of and apparatus for shrinking and re-shaping the quarters of shoes and for thereby tightening the fit of shoes about the heels of the wearer. The invention relates more particularly to women's low-cut shoes such as pumps, step-ins, oxfords and the like.

Owing to differences in shapes of human feet, it is impossible to produce in quantity shoes that will fit well all feet of a given size. Consequently it frequently happens that a shoe of proper length and width for a certain foot may gap at the sides and be too loose at the heel though fitting well in other respects. It is an object of the present invention to cure such difficulties by shrinking and re-shaping the quarters so that the length of the binding or top edge of the quarter is reduced and the shoe hugs the heel and sides of the foot. This is accomplished, according to the invention, by suitably crowding the upper margins of the quarters of the shoe and applying heat to the quarters, while so crowded, so as to shrink and re-shape the shoe.

For a more complete understanding of the invention, reference may be had to the following description thereof, and to the drawings of which

Figure 1 is a side elevation of an apparatus embodying the invention.

Figure 2 is a plan view of the same.

Figure 3 is a rear end elevation of the same.

Figure 4 is a sectional view on the line 4-4 of Figure 1.

Figure 5 is a sectional view on the line 5-5 of Figure 1.

Figure 6 is a fragmentary sectional view on the line 6-6 of Figure 4.

Figure 7 is a perspective view of a shoe before a re-shaping operation.

Figure 8 is a perspective view of the same shoe after re-shaping.

The invention may be embodied in apparatus which, as shown, may comprise a base 10 from which rises three standards 12, 14, 16 to support a U-shaped member 20 in an approximately horizontal position. This U-shaped member is a shaper which is adapted to be engaged by the upper portion of the quarters of a shoe to be re-shaped. To this end, the inner surfaces of the member 20 are made smooth and are formed so as to converge upwardly as indicated in Figure 4. A small lug 21 is provided at the top of the shaper 20 at the curved end to act as a stop to prevent a shoe which is pressed into the shaper from below from rising above the upper edge

thereof. The standard 16 is secured to the rear end of the shaper 20, the standards 12 and 14 being secured at points near its forward ends, all three of the supports being attached to the outside of the shaper so as to leave the inclined inner surfaces unobstructed. The standards 12 and 14 are preferably tubular. Within these tubes are a pair of rods 22 and 24 to the lower ends of which is secured a crosshead 26 to support a pad 28. The rods, crosshead and pad move up and down as a unit, the pad 28 being adapted to engage under the arch of a shoe inserted in the apparatus so as to support the shoe in engagement with the inner surfaces of the shaper 20. Within the tubular standards 12 and 14 a pair of compression springs 30 and 32 may be inserted below the rods 22 and 24, these springs being adapted to push the pad 28 upward against the arch of a shoe in the apparatus. A setscrew 34 with a wing head may be employed to be set up against the rod 22 as indicated in Figure 4 so as to secure the pad 28 in any position of adjustment.

Means is also provided for exerting rearward pressure against the breast of the heel of a shoe in the apparatus so as to push the quarters up against the inner surfaces of the shaper 20. Such means may comprise a pair of parallel horizontal rods 36 and 38 extending slidably through the crosshead 26 as indicated in Figure 4. These rods are joined by a cross-rod 40 which is shaped to bear against the concave breast surface of a shoe heel. The rod 38 is provided with a rearward extension 42 which is shaped to pass through a slot 44 in the standard 16 as indicated in Figure 3. The rear extremity of the extension may be threaded as at 46 to receive a nut 48 carrying a crank 50 by which the nut can be conveniently and rapidly rotated on the threaded portion 46 of the extension 42. The extension 42 is also provided with a collar 52 and a compression spring 54 between the collar 52 and the standard 16, this spring serving to press the rods 36 and 38 and their crosshead 40 forward.

The apparatus thus far described is adapted to receive a shoe and to operate upon the shoe in such a manner as to gather and crowd the upper portions of the quarters of the shoe in a manner hereinafter explained. Means is also provided for pressing against the inner surfaces of the quarters of a shoe thus held and for applying heat to such surfaces. As shown, the heating and pressing device may include a pair of members 60 and 62 suitably shaped to conform to the

inner surfaces of the shaper 20. Thus when the heating and pressing device is brought to bear against the inner surfaces of the quarters of a shoe supported in the apparatus, there is a uniformly distributed pressure on the portions of the upper between the surfaces of the members 60, 62 and the opposed inner surfaces of the shaper 20 which rigidly support the upper margins of the quarters. Heat may be supplied to the members 60 and 62 by any suitable means such as electrical units 64 which may be connected by suitable wires 66 to a source of electricity. The members 60 and 62 are movable toward each other for convenience in inserting the pressing device within the shoe. When the device has been inserted, the members 60 and 62 are laterally moved apart so as to cause them to press against the inner surfaces of the shoe quarters. To this end a rotatable shaft 70 having a knurled finger-piece 71 thereon is provided with a right and left hand screw thread, these threaded portions of the shaft being in engagement with internally threaded ears 72 and 74 which extend upward from the members 60 and 62 respectively. Between the ears 72 and 74 is a supporting lever 80 through which the shaft 70 passes. A pin 82 also passes through the lever 80 and the ears 72 and 74 to prevent rocking movement of the lever relative to the members 60 and 62. The lever 80 passes through a horizontal cylinder 84 which is supported on a horizontal platform 86. This platform is a part of a bracket 88 which extends outward from a sleeve 90. The sleeve is slidably adjustable on the vertical rod 22 and is secured in adjusted position thereon by suitable means such as a thumbscrew 92. The cylinder 84 has an extension 94 projecting through a slot 96 in an upstanding flange 98 in the platform 86. The platform 86 is likewise slotted at 100 to permit a limited freedom of movement of the cylinder 84 in the forward and rearward direction.

The operation of the apparatus hereinbefore described is as follows. A shoe which is or has become ill-fitting by reason of excessive looseness at the heel and gaping at the sides is placed in position with the upper portion of its quarters immediately beneath the shaper 20. The arch-supporting pad 28 is released by loosening the thumb screw 34 and permitting the springs 30 and 32 to press the pad 28 against the arch of the shoe. When a shoe is thus supported in position, the thumbscrew 34 is set up to secure the arch-supporting pad 28 in place. The crank 50 is then rotated in a direction to draw the crossbar 40 rearwardly against the heel breast. Continued rotation of the crank 50 results in rearward pressure against the heel breast which causes the shoe to rock on the pad 28 as a fulcrum as the quarters of the shoe are pressed upwardly against the converging inner surfaces of the shaper 20. The convergence of these surfaces results in a tendency on the part of the upper portions of the quarters to gather. The extent of this operation in any particular case will depend upon the amount of shrinking of the quarters which is desired by the operator. When the gathering step has been completed to the satisfaction of the operator, the heating and pressing device is then inserted in the shoe. Prior to insertion of this device the shaft 70 is rotated to bring the members 60 and 62 toward each other so as to facilitate their entry into the shoe. The thumbscrew 92 is then released so that the bracket 88 can be lowered, the heating device thus being also lowered into the shoe.

The thumbscrew 92 is then tightened to secure the heating device at the proper elevation within the shoe. By means of the lever 80 which has the cylinder 84 as a rolling fulcrum, the members 60 and 62 are pressed rearwardly so that their ends engage the heel portion of the inner surface of the quarters. While the device is thus held by means of the lever 80, the shaft 70 is rotated to spread the members 60 and 62 apart so as to cause them to press strongly against the inner surfaces of the sides of the quarters. In some cases it may be desirable to employ moisture in the pressing operation. The moisture may be introduced in any of the well known ways, for example, by sponging the interior of the shoe immediately prior to the introduction of the heating and pressing device. The heat and pressure from the members 60 and 62 shrink the quarters and shape them against the shaper 20, so that after a few minutes of such treatment, the heating and pressing device may be removed from the interior of the shoe, and the shoe may be removed from the apparatus.

The effect of such treatment upon a shoe such as illustrated in Figure 7 is to shorten the top edge of the quarters, bend forward the upper portion of the shoe upper at the heel end so as to cause the shoe to cling to the heel of the wearer more effectively, and to push inward the gaping sides of the quarters so that the sides of the foot will be hugged by the quarters of the shoe.

It is evident that various modifications and changes may be made in the embodiments of the invention herein illustrated and described without departing from the spirit or scope thereof as defined in the following claims.

What we claim is:

1. A method of shrinking and re-shaping the quarters of a shoe, which comprises gathering and crowding the upper margins of said quarters by inwardly directed pressure against the outer surface thereof while the inner surfaces are unsupported, thereafter applying heat and outward pressure against the inner surface of said upper margins, and rigidly supporting the outer surfaces of said upper margins while said outward pressure is applied.

2. Apparatus for shrinking and re-shaping the quarters of shoes, comprising a yoke-shaped member having inner converging surfaces adapted to be engaged by the upper portion of the quarters of a shoe, means for forcing a shoe upwardly against said inner surfaces so that the upper margins of the quarters are gathered and crowded, and means for applying heat and pressure to the inner surfaces of said gathered quarters.

3. Apparatus for shrinking and re-shaping the quarters of shoes, which comprises a yoke-shaped member having inner surfaces converging upwardly and adapted to be engaged by the quarters of a shoe, an adjustable arch support spaced beneath said member, means for applying pressure to the heel breast of a shoe resting on said arch support whereby to press the quarters against the converging inner surfaces of said member, and means for applying heat and pressure to the inner surfaces of said quarters.

4. Apparatus for shrinking and re-shaping the quarters of shoes, which comprises a U-shaped member disposed in an approximately horizontal position and having inner upwardly converging surfaces adapted to be engaged by the quarters of a shoe, a pair of standards secured to

opposite sides of said member for the support thereof, an arch support vertically slidable on said standards below said member and adapted to engage under the arch of a shoe in position to be operated upon, means for securing said arch support in adjusted position, means for pressing against the heel breast of said shoe whereby to force the quarters upward against said converging surfaces, and means for applying heat and pressure within said shoe.

5. Apparatus for shrinking and re-shaping the quarters of a shoe, which comprises a U-shaped member having inner converging surfaces adapted to be engaged by the quarters of a shoe, means for supporting said member in an approximately horizontal position, said support means including a pair of standards spaced from the heel end of said member, an arch support vertically slidable on said standards to engage under the arch of a shoe in position to be operated on, spring means pressing said arch support upward, means for securing said arch support in adjusted position, means for pressing against

the heel breast of said shoe whereby to press said quarters against said converging surfaces, and means for applying heat and pressure to the interior of said shoe.

6. Apparatus for shrinking and re-shaping the quarters of shoes, which comprises a U-shaped shaping member having converging inner surfaces adapted to be engaged by the quarters of a shoe, a vertically adjustable arch support beneath said shaping member, and means for pressing against the breast of a shoe supported on said arch support, said means including a cross-rod adapted to bear against the breast of said shoe, an extension from said cross-rod projecting rearwardly behind the heel of said shoe, and means for exerting a rearward pull on said extension and cross-rod whereby to rock the shoe on said support and press the upper margins of the quarters against said converging surfaces.

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