Sept. 15, 1931. H. H. BECKWITH 1,823,232

METHOD OF TREATING THE COUNTER PORTIONS OF SHOES

Filed July 5, 1928

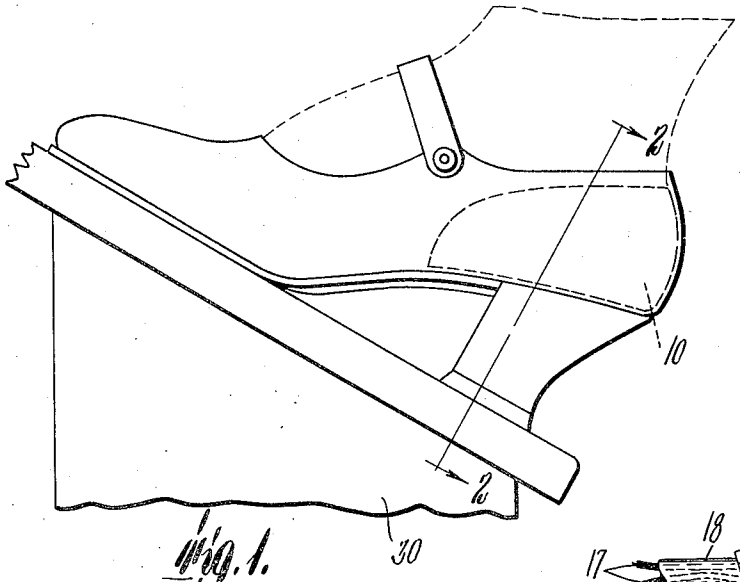


Fig. 1.

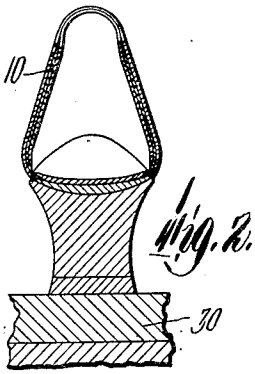


Fig. 2.

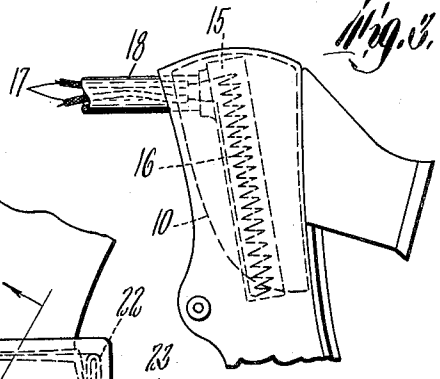


Fig. 3.

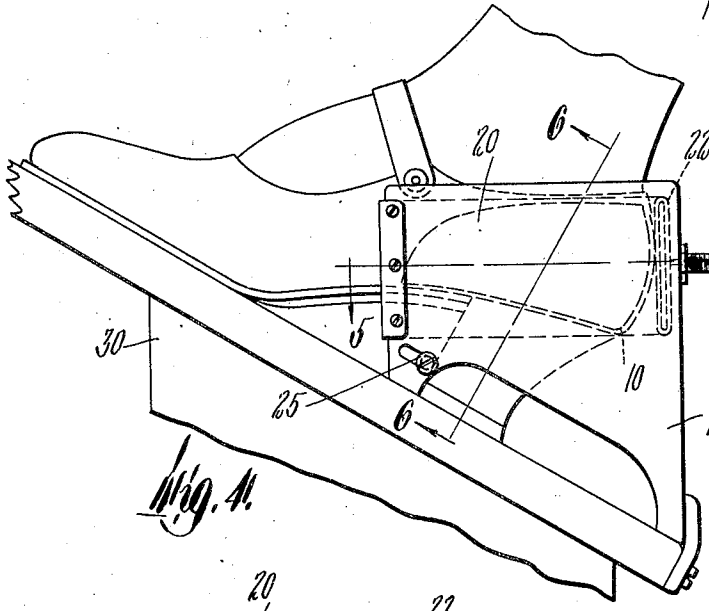


Fig. 4.

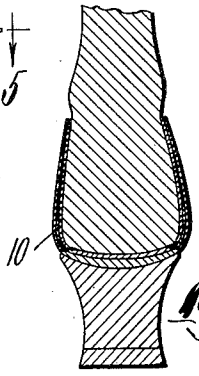


Fig. 6.

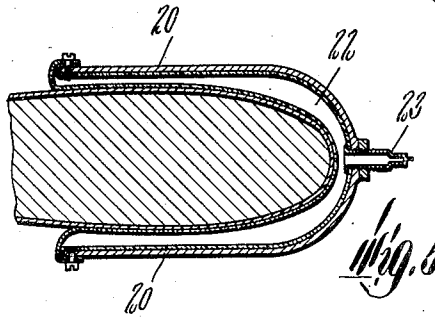


Fig. 5.

Inventor:
Harry H. Beckwith
by
Wright Brown Quinby & Ma
Attys.

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UNITED STATES PATENT OFFICE

HARRY H. BECKWITH, OF BROOKLINE, MASSACHUSETTS

METHOD OF TREATING THE COUNTER PORTIONS OF SHOES

Application filed July 5, 1928. Serial No. 290,310.

Heretofore it has been the practice to stiffen the rear portion of a shoe upper by placing in the upper materials a counter stiffener, either in soft condition when inserted and then shaped on the last and permitted to harden, or previously molded and in stiff condition when incorporated in the shoe. The counter portion of the shoe has thus been given a shape dependent either on the configuration of the last, or of the molded contour of the stiffener. In either case no account is taken of the peculiar characteristics of the foot on which the shoe is to be worn. The fit of this portion of the shoe is thus likely to be imperfect, the more the foot departs from that of the counter, the poorer being the fit. In service, therefore, many people experience considerable annoyance and discomfort from their shoes, particularly from low shoes or oxfords, in some cases the shoe rubbing on the heel, wearing the stocking and causing blisters on the foot, and in other cases causing painful pressure to be exerted locally on the foot, particularly over the os calcis and astragalus bones or along the upper edge of the stiffener.

According to the present invention these troubles due to improper fitting of the counter portion of the shoe are eliminated, the counter being so formed that it can be molded directly to the foot of the wearer, so that the counter is conformed accurately to the peculiar configuration of the particular foot on which the shoe is to be worn. To this end the counter stiffener is formed of material which may be shaped generally to the contour of the last when the shoe is made but which can be so treated after the shoe is made that it may be softened and then molded to the wearer's foot, and then permitted to set in this molded condition.

The material which I have so far discovered as most satisfactory for this purpose derives its stiffness more particularly from thermoplastic material which is stiff and rigid at room and body temperatures, but which can be softened sufficiently to permit it to be molded to the foot when subjected to a moderate heat so little above body temperature that it causes no discomfort to the foot, the stiffener being allowed to rigidify while held conformed to the foot so that when in unconstrained condition it retains the exact configuration of the foot to which it has been molded.

For a more complete understanding of this invention, reference may be had to the accompanying drawings in which

Figure 1 shows a shoe provided with a counter stiffener constructed according to this invention but being shaped to the foot.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a fragmentary side elevation showing somewhat diagrammatically the softening of the counter.

Figure 4 is a view similar to Figure 1, but showing the counter portion being molded to the wearer's foot.

Figure 5 is a section on line 5—5 of Figure 4.

Figure 6 is a diagrammatic section on line 6—6 of Figure 4.

Referring to Figure 1, the shoe is made up in the usual manner but in place of the usual modeled or soft counter, a counter formed of material which may be softened after being placed in the shoe and then permitted to harden is employed, as for example a stiffener comprising a fibrous foundation saturated with a thermoplastic stiffening agent. It may or may not have other agents incorporated therein, such as rubber or glue, for purposes which are now known in the art. Such a stiffener is shaped generally to the contour of the last and to the rear portion of the foot by any suitable means, as for example a molding operation similar to that now employed in the manufacture of shoe stiffeners from fiber or leather. It is shown in this condition at 10 in Figures 1 and 2. This general formation, however, may not closely fit the foot of the wearer, as his foot may depart considerably from the contour of the last about which the shoe is built, or from the contour commonly imparted by the molding operation.

After the wearer has chosen the shoes which he wishes to wear, the shoes are then treated so as to soften the counter portion,

which is thereafter molded while in softened condition directly to the wearer's foot. For example, where a counter having a thermoplastic stiffening agent is employed, the rear portion of the shoe may be softened for a time over a suitable heating means, as shown in Figure 3. As shown this heating means comprises a form 15 having an electric heating element 16 therein to which energy is supplied through the conductors 17 which extend through a bracket 18 on the outer end of which the element 15 is supported. When the shoe has been raised to a temperature sufficient to soften the counter to moldable condition, the shoe is placed on the wearer's foot as indicated in Figure 4, and the counter portion of the shoe is then conformed or molded directly to the foot within the shoe. A convenient method of molding the counter in this manner consists in placing the foot with the shoe thereon with its heel and shank portions between the sides 20 of a U-shaped jaw member 21 within which is positioned an inflatable tube 22 which may well be similar to or a portion of an inner tube of an automobile tire. The foot with the shoe thereon being placed in position between the sides 20 of the member 21, the counter stiffener being in softened condition and partially surrounded by the tube 22, the tube is inflated as through the valved nozzle 23 by any suitable means, as for example an ordinary tire pump, the shoe being held in proper position between the side portions 20 and prevented from being pushed forwardly by means of any suitable stop as at 25, with which, if desired, the breast face of the heel of the shoe may be engaged.

As a matter of convenience this mechanism for molding the counter portion of the shoe to the foot may be placed upon the shoe salesman's stool 30 commonly employed, and as shown in Figures 1 and 4, but of course this is not essential as the shoe may be molded to the foot in any convenient manner.

As the tube section 22 is inflated a substantially uniform pressure is exerted on the outer face of the shoe upper about the counter portion of the shoe, which presses this counter portion firmly but easily to the wearer's foot and while pressed in molded relation to the foot the stiffener is permitted to rigidify. Thus the counter portion of the shoe is conformed closely to the exact contour of the wearer's foot so that a proper fit of this portion of the shoe on the foot is insured. Of course, if desired, other portions of the shoe other than the counters might be molded to the foot in a similar manner.

I make no claim herein to the specific heating means by which the counter stiffener is softened or the specific means for molding the counter portion directly to the foot, these being not per se my invention.

Having described my invention and a method by which the advantages pertaining thereto may be realized, it should be evident to those skilled in the art that various changes and modifications may be made without departing from the spirit or scope of this invention as defined by the appended claims.

I claim:

1. The method which comprises forming a shoe having a counter stiffener therein shaped to the general contour of the foot, softening said counter stiffener, molding said counter including said softened stiffener to the foot of the wearer, and permitting said stiffener to rigidify in such molded condition.

2. The method which comprises forming a shoe having a counter stiffener therein shaped to the general contour of the foot, said stiffener including a thermoplastic stiffening agent, heating the counter portion of said shoe to soften said stiffener, and molding said counter portion while the stiffener is softened directly to the foot of the wearer.

In testimony whereof I have affixed my signature.

HARRY H. BECKWITH.