Jan. 8, 1957 F. MACCARONE 2,776,503

SHOEMAKING

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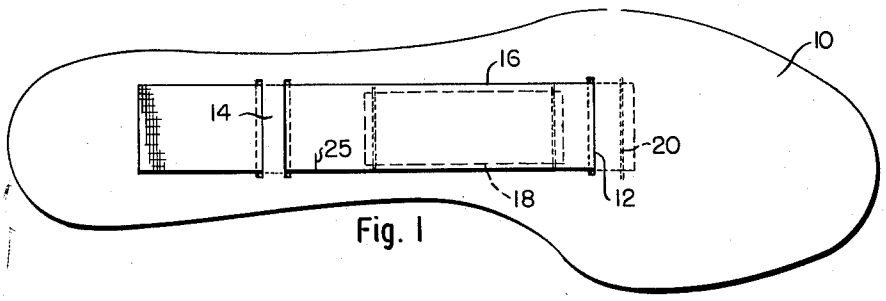

Fig. 1

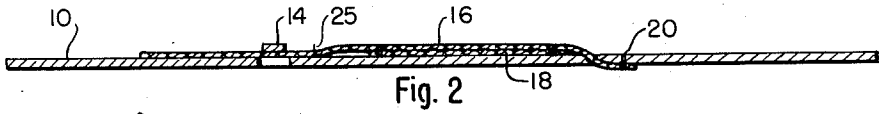

Fig. 2

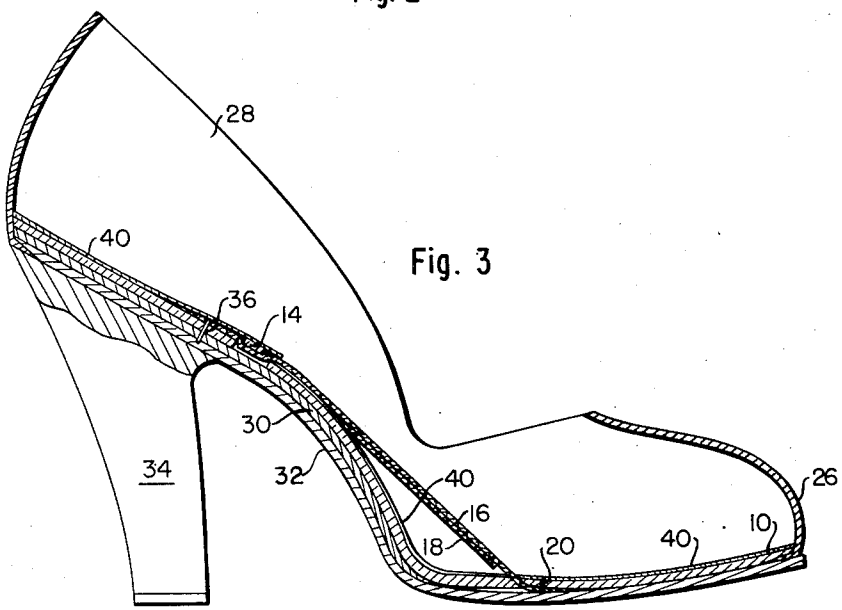

Fig. 3

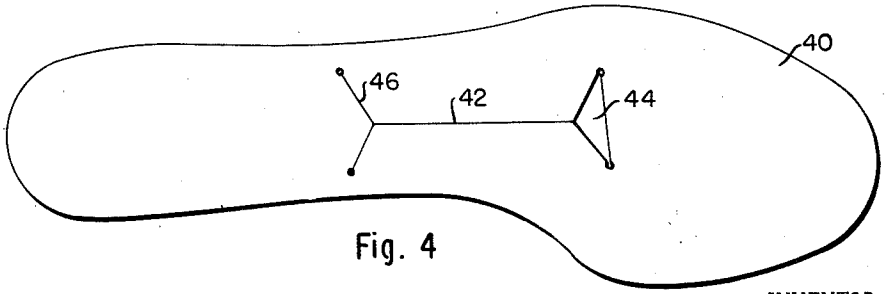

Fig. 4

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SHOEMAKING

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3 Claims. (Cl. 36—58.5)

This invention relates to shoemaking, and in particular to a novel construction and method of construction resulting in a shoe of improved fit and comfort.

It is the primary object of the invention to eliminate the unsightly and uncomfortable relative motion between the heel and the rear end of the shoe so often observed during that portion of a stride in which the weight of the wearer begins to leave the rear portion of the shoe. Although this slipping is experienced with all types of shoes, it is most pronounced in the case of women's shoes of open heel construction, since an observer connot help noticing the sloppy effect produced when the heel of the foot rises to expose an unsightly gap between the heel seat of the shoe and the foot.

A further object of the invention is to provide in a shoe means operating automatically to urge the heel seat and heel pocket portions of the shoe firmly in contact with the heel of the foot throughout the normal stride.

Another object of the invention is to provide in a shoe resilient supporting means for the arch of the foot.

An important feature of the invention resides in an elastic bridge member anchored at its forward end to the insole of a shoe and at its rearward end to the heel seat; the intermediate portion normally spanning the shank and serving during wear as a spring arm operating to urge the rear end of the shoe upwardly into engagement with the foot of the wearer.

Another feature of the invention resides in a novel method of shoemaking by means of which the elastic bridge member is permanently and securely incorporated into the insole structure of a shoe at minimum expense.

Still another feature of the invention consists in a resilient arch supporting pad or cushion secured to the lower surface of the elastic bridge member and functioning as an efficient and comfortable arch support.

Although I am aware that the concept of an elastic bridge member is not novel, they have hitherto been cemented into the finished shoe, an operation which not only requires expensive materials but is difficult to perform. Furthermore prior methods make it practically an impossibility to incorporate into a shoe the normal sock lining used to conceal the insole and to provide the inside of the shoe with a pleasing and attractive color. In contrast, I am enabled by the practice of my invention to incorporate the elastic bridge member permanently and easily into the basic structure of the shoe, without necessitating expensive materials or difficult procedures; moreover, I am further able to utilize a conventional sock lining provided with simple means for accommodating the elastic bridge member without in any way detracting from the appearance of the finished shoe.

These and other objects and features of the invention, together with incident advantages, will be more readily understood and appreciated from the following detailed description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings, in which:

Fig. 1 is a plan view of an insole prepared for use in the practice of the invention;

Fig. 2 is a view in cross section longitudinally through an insole showing the elastic bridge member initially attached thereto;

Fig. 3 is a view in longitudinal cross section through a finished shoe incorporating my invention; and

Fig. 4 is a plan view of a sock lining prepared for incorporation in the shoe of the invention.

In carrying out the method of my invention, I first provide an insole **10** of conventional configuration and of the usual material, preferably leather for shoes of high quality. I cut through the insole, preferably just in advance of the ball line, a transverse slit **12**; in the heel seat portion of the insole at or adjacent the breast line I cut through the insole a pair of closely spaced parallel slits which together form a thin strap portion **14**. As shown in Fig. 2, I then provide an elongated strip **16** of stout elastic goring, or other suitable elastic or resilient material; the strip is in the form of an elongated rectangle, the forward end of which is passed through the slit **12** in the forepart of the insole **10** and anchored to the lower surface of the insole by means of a line of stitching, staples, or other permanent attaching means. I then pass the rear end of the elastic strip **16** through the slits at the rear of the insole so that it is temporarily secured in face to face contact with the upper surface of the insole in untensioned condition.

The insole and the elastic strip having been assembled as described above, I then tack the insole to a last and proceed by conventional means to make the shoe, carrying out the normal processes of pulling over, lasting, sole attaching, and the like. It makes no difference from the standpoint of carrying out my invention whether the shoe is made as a cement shoe, a welt, etc.; furthermore, any of the conventional lasting systems may be employed.

In Fig. 4 I have shown a sock lining **40** of conventional configuration and material provided with a longitudinal centrally located slit **42** terminating at either end in relatively shorter tranverse slits **44** and **46**. After the shoe has been made and removed from the last the rear end of the strip **16** is pulled free from the strap **14** and passed through the slits in the sock lining **40**, the forepart and shank portions of the sock lining and then cemented to the exposed surface of the insole, the heel seat portion being left unattached. Then the end of the strip **16** is put back through the strap **14**, the strip then being pulled rearwardly until it has been satisfactorily tensioned. In order to predetermine the tension of the strip **16**, I may provide on its surface a grade mark **25** so that the strip may be pulled rearwardly until the grade mark registers with one of the edges of the strap **14**. Through the rear end of the tensioned elastic strip **16** I drive a staple **36** in order to anchor the rear end of the strip **16** permanently and securely into the heel seat portion of the insole. The heel seat portion of the sock lining is then cemented down in place. The elastic bridge strip **16** passes through the slits **42**, **44** and **46** of the sock lining and is in no way restrained by the sock lining. At the same time, the sock lining is permitted to lie flat upon the insole in continuous face-to-face contact therewith, the result being that the appearance of the finished shoe is entirely normal except for the presence of the elastic strip **16** which spans the hollow of the shank portion.

In Fig. 3 I show the finished shoe including a molded shank piece **30**, an outsole **32**, a heel **34**, and an upper comprising a forepart portion **26** and a heel pocket **28**. The upper may be provided with the conventional lin-

ings, box toe, and counter (not shown). As an optional feature of the invention, I have shown in Fig. 3 a pad or cushion 18 of sponge rubber secured by stitching or cement to the lower surface of the intermediate portion of the elastic strip 16.

When the shoe is placed upon the foot, the strip 16 is stretched and brought by the weight of the foot down against the insole. Thus the shank portion of the shoe becomes a spring lever arm tending to urge the heel seat upwardly into firm constant contact with the heel of the foot. As the wearer walks, the weight is first borne largely by the heel seat portion of the shoe, but the weight rolls forward to the forepart as the step takes place. It is during the end of the normal step cycle that the construction of my invention comes into play, since the spring shank acts to prevent relative movement of the heel of the foot and the heel seat of the shoe; consequently the heel end of the shoe travels with the heel of the foot throughout the completion of the step cycle. The result is not only to eliminate visible slipping at the rear end of the shoe but also to provide a substantial increase in comfort to the wearer.

The provision of the pad or cushion 18 upon the lower surface of the bridge member 16 further aguments the comfort of the shoe, since it serves as a resilient longitudinal arch support. A comparable effect may be secured by substituting for the sponge rubber pad 18 a strip of relatively heavy elastic goring stitched to the intermediate portion of the strip 16.

Finally, it should be noted that in the case of open shank shoes, the bridge member is not visible when the foot is at rest (as for example when the wearer crosses her legs). The bridge member becomes in effect part of the stocking. Moreover, the presence of the sock lining in usual position renders open shank shoes, or even strap sandals, entirely normal in appearance while being worn.

Those skilled in shoemaking will readily appreciate

that the foregoing detailed description of the preferred embodiment is subject to considerable variation in detail without departing from the spirit of the invention.

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

1. A shoe comprising an insole, an outsole secured to said insole, an elastic strip anchored at its forward end to the lower surface of the forepart of the insole and passing upwardly and rearwardly through a slit in the insole, means securing the rear end of the elastic strip to the heel seat portion of the insole, said strip being under tension, and a sock lining having a slit to accommodate said strip and lying flat on said insole.

2. A shoe comprising an insole, an outsole secured to said insole, an elastic strip anchored at its forward end to the lower surface of the forepart of the insole and passing upwardly and rearwardly through a slit in the insole, and means securing the rear end of the elastic strip to the heel seat portion of the insole, said strip being under tension.

3. A shoe comprising an insole, a sock lining secured to said insole, and an elastic gore secured only at its opposite ends to said insole and bridging the shank portion of said insole intermediate said opposite ends, the forward end of said gore extending through transverse slits in said sock lining and said insole and being secured to the under side of said insole, the rearward end of said gore extending through a slit in said sock lining, said intermediate portion being exposed above said insole and said lining.

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