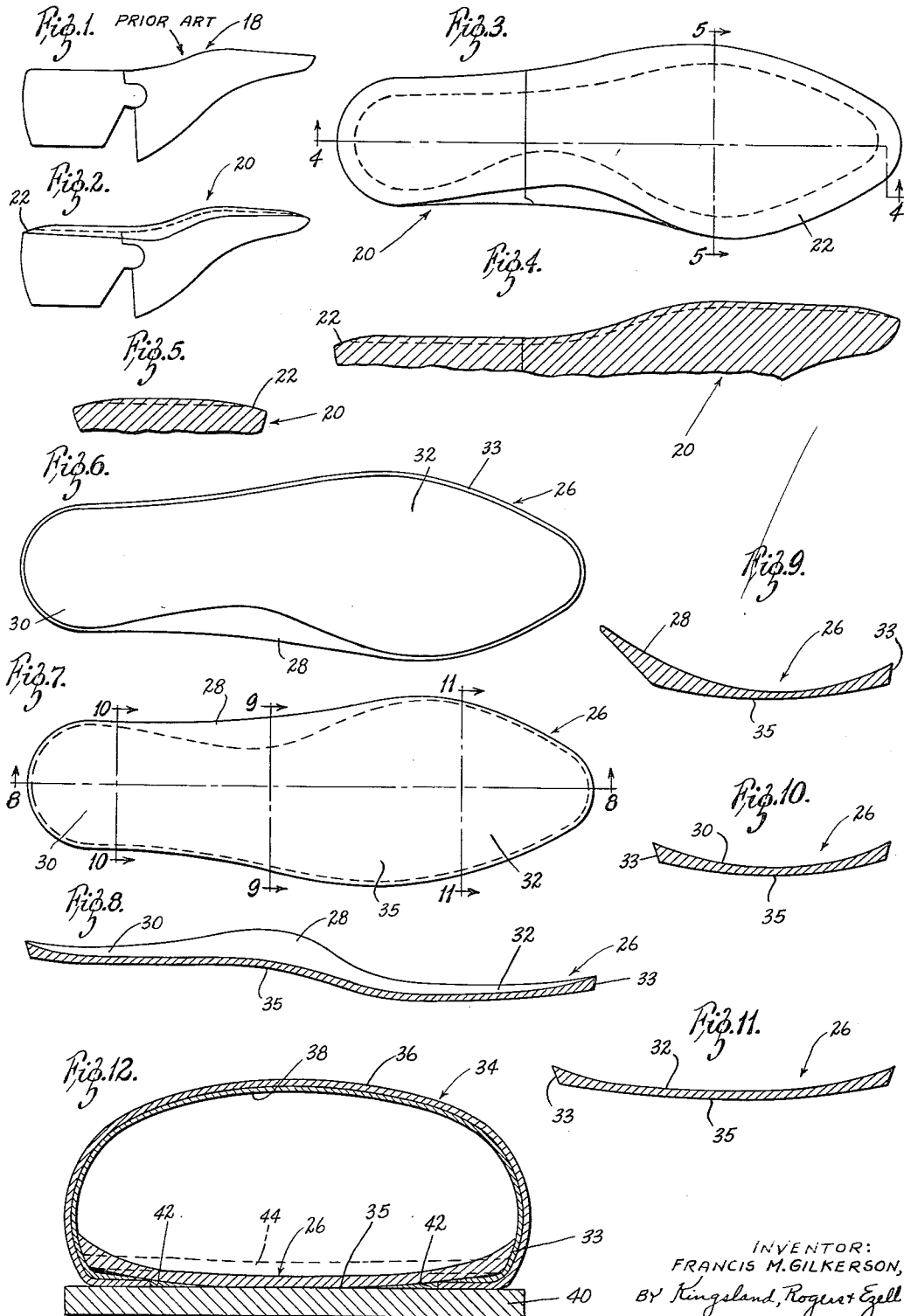


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FORM FITTING SHOE STRUCTURE

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FORM FITTING SHOE STRUCTURE

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4 Claims. (Cl. 36-2.5)

The present invention relates generally to the shoe art, and more particularly to a novel shoe structure incorporating a novel insole structure produced under known production methods.

It has long been desirable to provide a stock shoe by present production methods for the general trade, which is effectively form fitting as to the insole, yet has the external appearance of the accepted shoe of today. It has been desirable to provide a shoe including an insole having a substantial support for the longitudinal arch and formed generally to keep the entire foot in a balanced position to prevent the foot from slipping sideways or longitudinally in the shoe. It is also desirable that the provision thereof not interfere with present day conventional mass production methods, styling, or fitting of shoes. There has long existed the need for a shoe which properly positions the normal foot of a wearer, which can be purchased at the usual retail outlets, and which has the external appearance and style, as desired, of current shoes. Special orthopedic shoes can be purchased and various inserts are available, but a shoe providing proper positioning of the foot and maximum comfort for the run-of-the-mill purchaser is not available as a stock item in the retail stores today.

Therefore, an object of the present invention is to provide a novel shoe construction which fulfills the long felt need as set forth in the foregoing paragraph.

In brief, the present novel shoe construction includes a premolded insole formed, for example, of a suitable cork and rubber compound, or the like, which is contoured to provide a substantial support and natural fit for the longitudinal arch and to keep the entire foot in a balanced position, yet the interior over-all measurements of the finished shoe product are substantially the same as that of a comparable shoe using a conventional insole. The outside measurements, appearance, and styling of the shoe are not changed. In making the shoe with the insole thus contoured, a modified last is provided. A conventional last is feathered or reduced around the circumference or border of the sole, and the central area thereof is filled so that a convex, transverse cross section is achieved. Lasts of such predetermined modified bottom form may be provided by the last maker. Insoles are cast in molds made from the modified lasts, said insoles, in general, being concave in the forepart and heel areas and arched intermediate thereof to support the longitudinal arch of the foot.

Another object is to provide a novel shoe structure in a stock shoe which includes an insole that will prevent the foot from slipping laterally or longitudinally in the wear thereof, and which has a cross section area substantially equal to that of a comparable conventional insole.

Another object is to provide a novel cast insole for a stock shoe which is form fitting for the bottom of a normal foot, which will not lump under the toes of the wearer, thereby decreasing wear on the outer sole, and which substantially eliminates running over to the inside or to the outside of the foot.

Another object is to provide a novel shoe structure, which properly positions the foot of a wearer in a stock shoe, yet offers no interference to the usual methods of making or styling shoes in the mass production methods of today.

The foregoing and other objects and advantages are

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apparent from the following description taken with the accompanying drawing, in which:

FIGURE 1 is a side elevational view of a conventional last;

FIGURE 2 is a view similar to FIGURE 1, showing the conventional last after modification in accordance with the present novel method of making a form fitting precast insole;

FIGURE 3 is an enlarged bottom plan view of the last of FIGURE 2;

FIGURE 4 is a longitudinal, vertical, cross-sectional view taken on the line 4-4 of FIGURE 3, the upper part of the last being broken away for conservation of space;

FIGURE 5 is a transverse, vertical, cross-sectional view taken on substantially the line 5-5 of FIGURE 3, the upper portion of the last being broken away for conservation of space;

FIGURE 6 is a bottom plan view of a novel insole structure incorporating the teachings of the present invention;

FIGURE 7 is a top plan view thereof;

FIGURE 8 is a longitudinal, vertical, cross-sectional view taken on substantially the line 8-8 of FIGURE 7;

FIGURES 9, 10, and 11 are transverse, vertical, cross-sectional views taken on substantially the lines 9-9, 10-10, and 11-11 of FIGURE 7; and

FIGURE 12 is an enlarged, transverse, vertical, cross-sectional view through the forepart or vamp of a shoe incorporating the present novel cast insole.

Referring to the drawing more particularly by reference numerals, 18 indicates a conventional shoe last, while 20 indicates generally a modified shoe last made in accordance with the principles of the present invention. Comparing the modified shoe last 20 with the conventional shoe last 18, the former is beveled or feathered at 22 around the entire perimeter of the bottom or sole, as is clear from FIGURES 2-5. In a size 7 last for men's shoe, for example, the bevel 22 is substantially $\frac{5}{32}$ " in depth at the outer edge and feathers inwardly for a distance of substantially $\frac{3}{16}$ ". In the longitudinal arch area, the bevel depth is substantially twice as great, or $\frac{1}{8}$ ", and the inward feathering is correspondingly more. The island area defined by the inner circumference of the bevel 22 is deeper or thicker than the comparable area of the shoe last 18, being substantially $\frac{1}{16}$ " thicker in the center area, feathering outwardly into the bevel 22 to form a smooth continuous last bottom, as is clearly illustrated in the drawing. Last makers provide these modified lasts 20 to specifications.

A mold is made from each modified shoe last 20 by any desired method in which cast insoles 26 are made.

A cast insole 26 for a size 7 men's shoe is generally of the configuration shown in FIGURES 6-11 of the drawing. It will be observed that the novel molded insole 26 includes a raised longitudinal arch portion 28, a depressed heel cavity 30, and a generally concave portion 32 for the forepart of the foot. The marginal edge or periphery 33 of the cast insole 26 slopes inwardly, so that the bottom 35 of the cast insole 26 has substantially the same peripheral measurement or bottom outline as a standard flat leather insole. Hence, there is no distortion outwardly of the shoe upper.

In FIGURE 12, the novel cast insole 26 is illustrated as part of a shoe 34. The shoe 34 includes the cast insole 26 disposed within a vamp 36 and vamp lining 38 and above an outsole 40 which is glued to the turned edges of the vamp 36 (upper) in the usual fashion of shoemaking. A small amount of filler material 42 may be disposed at each side of the present insole 26.

It is manifest that any process of shoemaking may be

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employed in applying the sole 40, such as the Goodyear welt, stitchdown, McKay, and the like. A unique feature of the present invention is the fact that its use requires no change in any of the modern methods of shoemaking. The cast insole 26 is merely substituted for a conventional insole and modified lasts 20 replace conventional lasts 18.

In FIGURE 12, it is clear that the overall closed path made by following the vamp lining 38 and the upper surface of the cast insole 26 on a transverse vertical section is substantially the same as a similar continuous path formed by following the vamp lining 38 and the upper surface of a regular flat insole 44 indicated by dotted or broken lines. The novel cast insole 26 extends above the stock flat insole 44 at the sides thereof and below it intermediate the sides. In other words, the normally unoccupied space at the juncture of the insole and upper in a normal shoe is utilized by the present novel cast insole 26 in properly positioning a foot. This fact and the further factor of forming the cast insole 26 centrally of a thickness less than that of the conventional insole 44 avoids an overtight or snug fit, and the requirement of an over-all deeper shoe, which the public always has resisted purchasing. This is another significant feature of the present novel shoe structure.

It is manifest that the raised longitudinal portion 28 of the cast insole 26 effects a substantial support for the longitudinal arch of the foot. Additionally, the heel cup and the concave foreportion of the cast insole 26 provides comfortable reception for the affected portions of the foot in a manner to prevent slipping or sliding of the foot backwardly and forwardly or sideways in the shoe 34. There is no lumping of the insole under the toes, and rolling sideways of the foot to overturn or overrun the shoe either to the inside or to the outside is prevented.

It is to be understood that specific dimensions of bevel and feathering will vary with the shoe size, or type. The marginal edge of the cast insole 26 may be varied to satisfy different methods of manufacture, as an integral portion may be provided for stitching.

Basically, the cast insole 26 is formed with the upper surface contoured for the foot and to the particular last, and the bottom surface substantially flat and of a periphery substantially equal to the periphery of the bottom of a conventional leather insole.

It is manifest that there has been provided a novel shoe structure. The objects and advantages sought therefor are achieved thereby.

It is to be understood that the foregoing description and the accompanying drawings have been given by way of illustration and example. It is also to be understood that changes in form of the several parts, substitution of equivalent elements, and rearrangement of parts, which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention, which is limited only by the claims which follow.

What is claimed is:

1. A shoe comprising an upper, an outsole, and a full insole, said upper, outsole and insole being permanently secured together, said insole being contoured on its upper surface to substantially conform to a normal foot of appropriate size, and on its lower surface to complement the upper surface of the outsole, margins of the upper

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surface of the insole being substantially greater than the margins of the lower surface of the insole, the upper surface of the insole extending beyond the lower surface of the insole at a maximum in the region of the shank under the center of the longitudinal arch of the foot and tapering to minimums at the toe and heel ends of the insole, marginal portions of the insole being thicker than a comparable ordinary insole and the central portions being thinner, whereby the total volume of the insole is substantially equal to that of a comparable ordinary insole and the total volume of the shoe is substantially equal to that of a comparable ordinary shoe.

2. A shoe comprising an upper, an outsole, and a full insole, said upper, outsole and insole being permanently secured together, said insole being contoured on its upper surface to substantially conform to a normal foot of appropriate size, and on its lower surface to complement the upper surface of the outsole, margins of the upper surface of the insole being substantially greater than the margins of the lower surface of the insole, the upper surface of the insole extending beyond the lower surface of the insole at a maximum in the region of the shank under the center of the longitudinal arch of the foot and tapering to minimums at the toe and heel ends of the insole, marginal portions of the insole being thicker than a comparable ordinary insole and the central portions being thinner, whereby the total volume of the insole is substantially equal to that of a comparable ordinary insole.

3. A shoe comprising an upper, an insole and an outsole, said upper, outsole and insole being permanently secured together, said insole being contoured on its upper surface to substantially conform to the foot of an average wearer, the periphery of said upper surface being greater than the periphery of said bottom surface, said insole having a volume substantially equal to that of an equivalent ordinary insole of substantially uniform thickness.

4. A shoe comprising an upper, an insole and an outsole, said upper, outsole and insole being permanently secured together, said insole being contoured on its upper surface to substantially conform to the foot of an average wearer, the periphery of said upper surface being greater than the periphery of said bottom surface, said insole having a volume substantially equal to that of an equivalent ordinary insole of substantially uniform thickness, the cubic capacity of said shoe adapted to receive a foot being substantially that of a shoe with an ordinary insole of substantially uniform thickness.

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