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T. R. SIMONS
ARCH SUPPORTING SHOE
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2,464,159

Fig. 1.

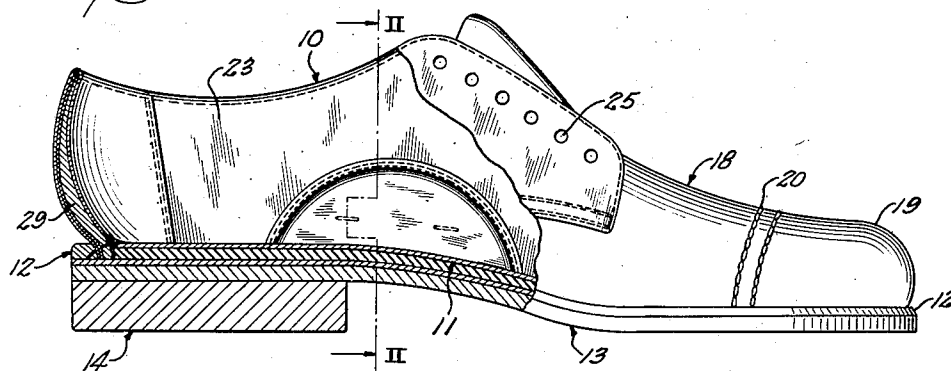
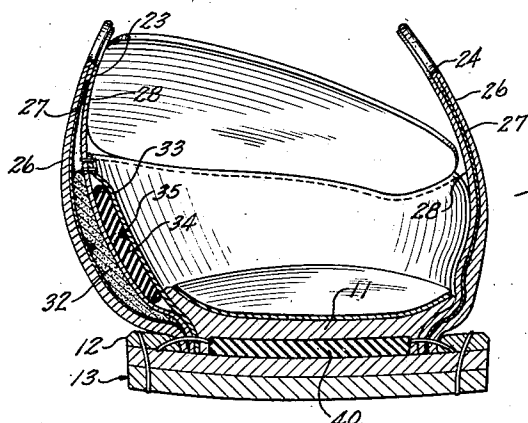
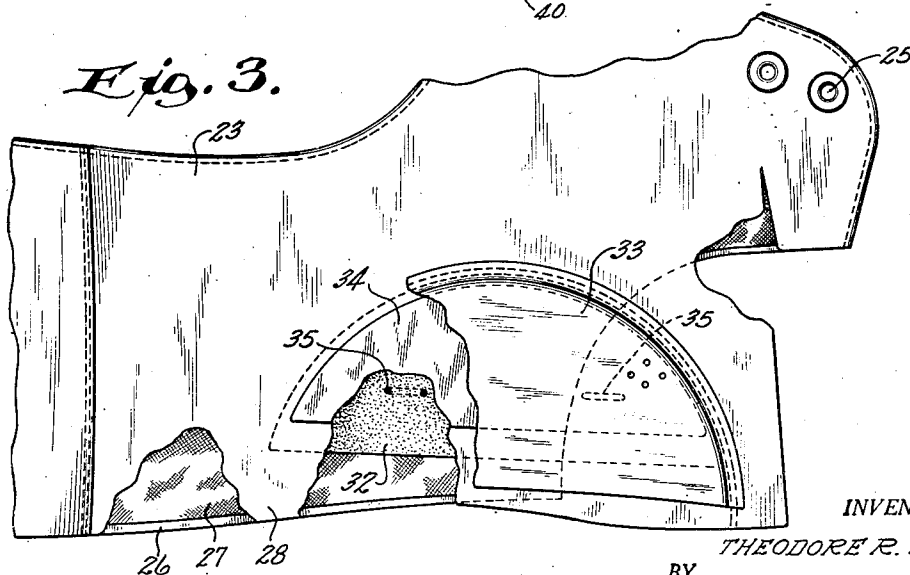


Fig. 2.

Fig. 3.



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ARCH-SUPPORTING SHOE

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2 Claims. (Cl. 36—8.5)

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This invention relates to improvements in shoe structures and a method of shoe manufacture and more particularly to shoe structures having a built-in arch support.

One object of the invention is to provide an arch-supporting type of shoe in which a plurality of means having different properties are so combined that each modifies the action of the other while coacting to furnish the desired support.

Another object of the invention is to provide an arch-supporting shoe in which support is obtained by the combined action of a stiffening element and a cushioning element assembled in predetermined relationship so as to meet varying personal requirements.

Another object of the invention is to provide an arch-supporting shoe in which a substantially non-deformable stiffening means provides the support for the whole arch of a foot while a resilient padding means built into the shoe and related to the stiffener adapts the stiffener action to the needs for localized pressure of a particular wearer without undesirable change in the appearance of the shoe while enhancing the durability thereof.

Another object of the invention is to provide a method for making shoes employing a combination stiffened and padded arch support in which the pad and the stiffener are placed and fixed in a predetermined relation in the shoe upper prior to the sole laying operations.

Another object of the invention is to provide a method for making arch-supporting shoes in which a predetermined relationship of a pad and a stiffener is positively maintained during completion of the shoe and during its use.

Applicant is aware of prior arch-supporting shoe structures, such as shown in Patent 2,107,129 to Rohn et al., issued February 1, 1938, which do not, however, function in the same manner nor produce the same result as in the present invention.

Objects and advantages other than those above set forth will be apparent from the following description when read in connection with the accompanying drawing, in which:

Fig. 1 is an elevation of the shoe embodying the present invention with a portion of one of the vamp rear quarters broken away to illustrate the relationships of the various elements of the shoe;

Fig. 2 is a vertical section taken on the broken line II—II of Fig. 1, the parts appearing in ele-

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vation being somewhat diagrammatically indicated to clarify the illustration; and

Fig. 3 is a development of a portion of a shoe upper with parts broken away.

The shoe shown in the drawing for illustration purposes comprises an upper 10, insole 11, welt 12, outsole 13, and heel 14.

The shoe upper 10 includes a forepart 18 which may or may not be provided with a separate tip at 19, the lines 20 in the present construction merely indicating stitching to simulate a tip construction. The upper of the shoe has two rear quarters 23 and 24 joined to the forepart 8 and to each other, the rear quarters being provided with lacing eyelets 25. The rear quarters are similar in their general construction and each comprises an outer 26 into which a cloth interliner 27 is fixed and a leather lining 28 is secured along at least some of its edges to the outer leather. It will be understood that the linings are suitably shaped by the use of darts, gussets, etc. to conform to the desired last. The heel portion of the upper is suitably reinforced by a counter 29 and the toe of the shoe may likewise be reinforced by the usual toe stiffener box (not shown).

The rear quarter 23 of the shoe upper is provided with an arch-supporting stiffener 32 which is preferably of textile material impregnated with a substance which makes the stiffener relatively hard and rigid when in use but which may be rendered soft and pliable, when desired, as in lasting the shoe. Such materials are well known in the art and need not be specially described herein. The stiffener is shaped substantially as a semi-circle and the edges are preferably skived to avoid interference with the inseam sewing and the formation of undesirable bulges or ridges in the finished shoe. The stiffener is inserted between the cloth interliner 27 and the leather lining 28, in the position indicated in Fig. 3, to be fixed in the finished shoe, as indicated in Fig. 1.

A pocket is formed on the leather lining 28 by a leather patch 33, the pocket also being substantially semi-circular in shape but larger than the stiffener and sewed on the inside of the lining at the location at which the stiffener is to be held. The difference in size of the patch and stiffener should be such that the sewing of the patch lies outside the edge of the stiffener, thus obtaining a more comfortable arch support through the gradual increase in thickness from the edge to the center of the built-up portion. The patch is preferably leather similar to that of the lining 28 and the pocket formed thereby

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receives and encloses a pad 34 of resilient material, such as sponge rubber preferably of a shape similar to that of the stiffener but slightly smaller than the stiffener. The pad is of such size as to have a slight clearance between its edges and the enclosing pocket 33 so that the pad may distort under pressure as required when the shoe is in use.

In manufacture of the shoe upper the pocket patch 33 is sewed on the exposed face of the lining in the desired location and the outer 26, the interliner 27, and the leather lining 28 then are assembled. The pad 34 is then centered in the pocket and the stiffener 32 is placed between the lining 28 and the interliner 27 below the pad and centered thereon. Such superposed relationship is then permanently fixed as by staples 35 which penetrate through the pad, the lining, and the stiffener. Obviously other securing means might be employed in lieu of staples. The completed upper is then applied to the last and the insole attached in well known manner. In the in-seaming operation the lower edges of the outer leather, inner liner, and patch are fastened to the in-seam ridge between the latter and the welt. It is preferable that the in-seam stitching does not penetrate the lower edge of the stiffener which is held in position by hardening of the stiffener on the last. Inseaming through the stiffener would change the thickness being sewed and cause sewing difficulties or even produce undesirable bulges or ridges in the shoe. After the inseaming has been completed, the partially completed shoe is trimmed and a filler 49 of any suitable material is applied to the underside of the insole 41. The outsole is then attached and the shoe finished, all in well known manner.

It will be seen that the present invention provides an arch support utilizing the combined action of a stiffener concealed from view in the finished shoe, and a resilient pad superposed on the stiffener and located in a pocket visible inside the completed shoe. The supporting stiffener hence does not affect the outward appearance of the shoe but the pocket is visible on the inside of the shoe indicating the presence of an arch support.

The stiffener and the pad have substantially opposite, or at least widely different, characteristics, and function in different ways to modify the actions of each other so that the sum total of the desired arch support is obtained. To obtain the desired combined action of the two supporting means shown, such means are permanently fixed in predetermined relation prior to the in-seam sewing of the shoe so that no displacement from the desired position of either of the supporting means can occur during either the manufacture or use of the shoe.

It will be understood that the stiffener furnishes the basic support and to that end is shaped to conform to the average arch. However, there is a wide variance in individual requirements and no single contour of stiffener will alone provide the maximum comfort in all cases. With the present invention the cushion or pad equalizes or distributes the pressure of the arch on the stiffener and the latter is thus made to conform to the contour best suited to the individual's requirements. Thus, by virtue of the combined ac-

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tion of the stiffening member and resilient pad an effect comparable to "individualized arch support" is achieved in mass shoe production which avoids the necessity for built-to-order shoes in the vast majority of cases.

Although but one embodiment of the present invention has been illustrated and described it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. A shoe having an upper comprising an outer and lining, a generally semi-circular pocket forming member located at the arch portion of the upper with its chord disposed downwardly and its curved edge secured to the exposed face of the lining, a sponge rubber pad having a shape similar to but smaller than said member and being positioned in the pocket in contact with the lining and with its curved edge substantially spaced from the secured edge of said member to provide space for distortion of the pad edge portions when stressed, a stiffener having a generally semi-circular shape and being positioned opposite the pad, between the covering and the lining, isolated fastening means penetrating the pad, the stiffener, and the lining and securing the pad and the stiffener to each other and to the lining, said fastening means comprising the sole means of attaching the pad and the stiffener to the lining and being substantially spaced from the edge of the pad to allow said distortion of the pad edge portion, and an insole and a welt having secured therebetween the lower edges of the outer covering, the lining and said member to close the bottom of the pocket.

2. A shoe having an upper comprising an outer and lining, a generally semi-circular pocket forming member located at the arch portion of the upper with its chord disposed downwardly and its curved edge secured to the exposed face of the lining, a sponge rubber pad having a shape similar to but smaller than said member and being positioned in the pocket in contact with the lining and with its curved edge substantially spaced from the secured edge of said member to provide space for distortion of the pad edge portions when stressed, a stiffener having a generally semi-circular shape and being positioned opposite the pad, between the outer and the lining, and staples securing the pad and the stiffener to each other and to the lining, said staples comprising the sole means of attaching the pad and the stiffener to the lining and being substantially spaced from the edge of the pad to allow said distortion of the pad edge portion.

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REFERENCES CITED

The following references are of record in the file of this patent:

FOREIGN PATENTS

Number	Country	Date
109,492	Austria	Apr. 25, 1928
307,165	Great Britain	Mar. 7, 1929
425,661	Great Britain	Mar. 19, 1935