Oct. 25, 1938. W. C. BURNS 2,134,598

METATARSAL NONSLIP SOLE

Filed May 3, 1937

Fig. 1.

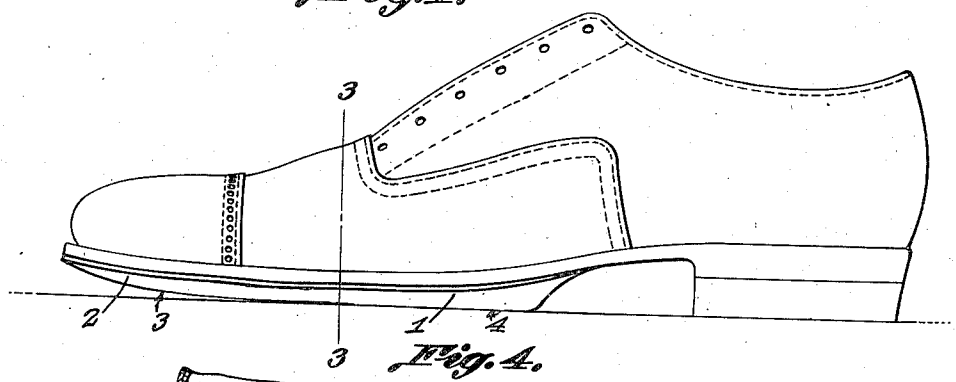


Fig. 4.

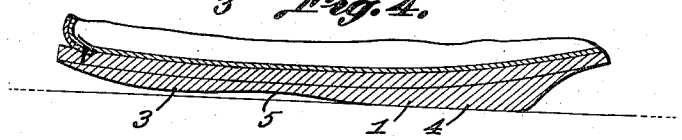


Fig. 2.

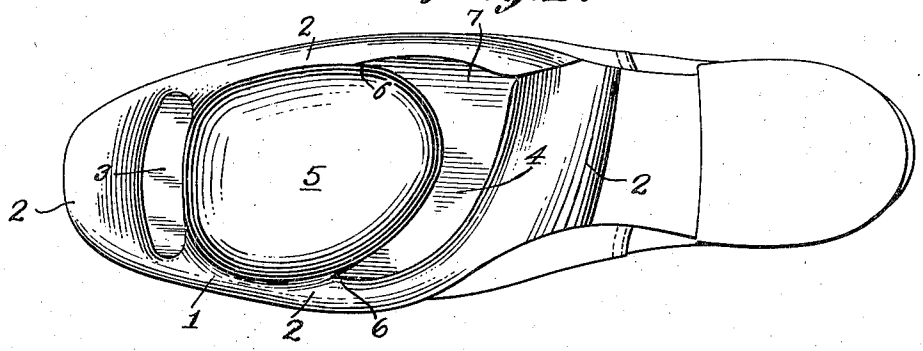
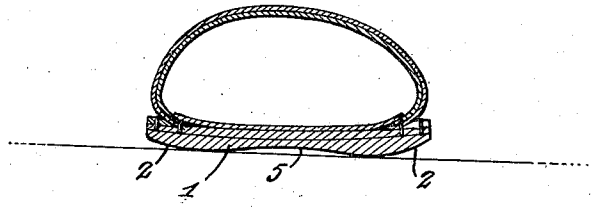


Fig. 3.



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METATARSAL NONSLIP SOLE

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Application May 3, 1937, Serial No. 140,556

3 Claims. (Cl. 36—59)

This invention relates to shoe soles and its general object is to provide an outer or ground engaging sole that is made from rubber or other like resilient material, constructed and shaped on the outer surface thereof, to support the foot in a manner to bring about utmost comfort to the user as well as to retain the shape of the shoe and to equalize wear, thereby prolonging the life of the shoe in its entirety.

A further object is to provide an outer sole for shoes, that tends to correct certain deformities of the foot, supports and strengthens the arch, prevents the formation of callouses and the like, and eliminates discomfort brought about by the straight non-supporting soles now in general use.

Another object is to provide a sole that will prevent slipping on wet surfaces and the like, is simple in construction, inexpensive to manufacture and extremely efficient in use and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a side elevation of a left shoe illustrating my sole attached thereto.

Figure 2 is a bottom plan view.

Figure 3 is a sectional view taken approximately on line 3—3 of Figure 1.

Figure 4 is a vertical longitudinal sectional view taken through a fragmentary portion of the shoe, with the sole attached thereto.

Referring to the drawing in detail, it will be noted that I have illustrated a half sole constructed in accordance with my invention, but of course it will be understood that the sole can be constructed to provide a whole or complete outer sole. The sole illustrated is for a left shoe as shown, and the parts or the elements thereof would of course be arranged in a reverse direction for a right shoe. In any event, the left hand side or lateral edge of the sole as shown, is disposed uppermost when viewing Figure 2, and the right hand lateral edge is lowermost, therefore such will be understood when reference is made hereafter to those edges.

The sole is made from rubber or other like resilient material and is preferably provided with a flat upper surface to be secured to the bottom of the sole portion of the shoe, by cement or other suitable securing means, and the underside is inclined transversely to increase the thickness of the sole from the right hand lateral edge to the left hand lateral edge as will be noted upon inspection of Figure 3 which together with Figure 2, shows that the entire sole or body thereof which is indicated by the reference numeral 1 is provided with beveled outer edge portions about the entire outline of the surface thereof, and which are rounded downwardly from the outer edges as at 2.

The under surface of the sole adjacent to the forward portion thereof has formed thereon a downwardly directed ground engaging portion 3 that is provided with a flat outer face, and the portion 3 extends transversely of the sole, as shown in Figure 2, the face being rounded at its forward edge in concaved formation, while the rear edge of the face is convexed. From the face, the downwardly directed ground engaging portion merges at an upward curvature laterally and forwardly into the beveled edge portions 2 of the sole, as shown in Figures 2 and 4.

The sole has likewise formed on the under surface thereof adjacent to its rear end or arch portion a downwardly directed ground engaging portion 4 that is provided with a flat outer face of substantially crescent shape, and the portion 4 increases in thickness and width, transversely of the sole from right to left, so that its widest and thickest portion will be disposed adjacent to the left hand lateral edge of the sole, as suggested in Figure 2. The portion 4 from the outer flat face thereof merges at an upward curvature laterally and rearwardly into the beveled edge portions 2 of the sole, and the concaved edge of the face of the portion 4 is directed forwardly as shown in Figure 2. The portion 4 also extends rearwardly and laterally in substantially triangular formation for disposal substantially below or slightly to the rear of the fifth metatarsal bone and the extension which is indicated by the reference numeral 7 gradually merges at an upward curvature into and at the juncture of the left side and rear beveled edge portions 2, as clearly shown in Figure 2.

Disposed approximately centrally of the body of the sole is a substantially oval shaped concavity or depression 5 that extends lengthwise thereof, to the confronting or rearward and forward edges respectively of the faces of the portions 3 and 4, as shown in Figure 2, which likewise shows that the ends of the substantially crescent shaped outer flat face of the portion 4 extend forwardly in a line beyond the rear end

of the depression, but of course upon opposite sides thereof, as these ends which are indicated by the reference numeral **6** terminate adjacent to the side edges of the body of the sole.

All of the above mentioned elements contribute to the comfort of the user as well as prevent premature wear of the sole and shoe, and the downwardly directed ground engaging or depending portion **3** not only reinforces the sole adjacent to the forward or toe portion thereof, but protects the toe of the shoe from being scuffed and also prevents the toe portion of the sole from being scuffed, scraped or pulled loose, which has always been the greatest source of trouble with respect to a rubber sole, as when they become loose at the toe portion thereof, it is obvious that the entire sole is readily removable and is generally pulled off in minimum time, or damaged to an extent that further use is impossible.

The reason for increasing the thickness of the body of the sole as set forth, is to balance the sole and of course to equalize wear thereon, as generally the outer side or left hand portion of a left shoe sole as shown, wears more quickly than the right hand side, but of course the reverse is true with respect to a right hand sole.

The downwardly directed ground engaging or depending portion **4** is disposed at the forward end of the arch of the shoe and forms an abutment which cooperates with the heel for properly supporting the arch, it being obvious that the heel supports the rear end of the arch and the portion **4** supports the arch directly to the rear of the five metatarsal bones, with the result the strain on the arch will be relieved, which will prevent the foot from spreading, thereby retaining the shoes in shape and causing them to wear longer. The portion **4** is preferably higher or thicker directly to the rear of the fifth metatarsal bone, as previously set forth so that it prevents lateral slippage of the foot of the user in the shoe, and therefore pressure against the small toe is eliminated, which of course, will prevent the formation of corns and the like.

The depression **5** performs a dual function, in that it not only tends to act as a suction cup to prevent slippage on wet surfaces or the like, but will prevent the inner sole and the intermediate sole as well as any filing within the shoe or between those soles from rising up on the inside of the shoe which of course is uncomfortable to the wearer.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:

1. An outer sole for shoes, comprising a body, a downwardly directed ground engaging portion formed on the undersurface of the body adjacent to the forward end thereof and disposed transversely with respect thereto, a downwardly directed ground engaging portion formed on said undersurface adjacent to its rear end and extending transversely thereof, and the last mentioned downwardly directed ground engaging portion increasing in width and thickness laterally toward one end thereof.

2. An outer sole for shoes, comprising a body, an elongated downwardly directed ground engaging portion formed on the undersurface of the body adjacent its forward end and disposed transversely thereof, a downwardly directed ground engaging portion formed on the undersurface adjacent its rear end and disposed transversely thereof, said portions each having a flat lowermost face merging into the body in upwardly curved formation, and the flat face of the rear portion being substantially crescent shaped with the concaved portion thereof directed forwardly.

3. An outer sole for shoes and being formed from elastic material such as rubber, said sole being provided with a substantially oval shaped depression centrally in the undersurface thereof and extending lengthwise of said surface, a downwardly directed ground engaging portion formed on and extending transversely of the undersurface adjacent to the forward end thereof, a downwardly directed ground engaging portion formed on the undersurface adjacent to its rear end and extending transversely thereof, said downwardly directed ground engaging portions having flat lowermost faces and gradually merging into the body from the flat faces in upwardly curved formation, the flat face of the rear portion being substantially crescent shaped with its concaved edge disposed about the rear end of the depression and with its outer ends arranged upon opposite sides thereof, said rear portion increasing in width and thickness from one end thereof to its opposite end, and said body increasing in thickness throughout its area from one lateral edge thereof to its opposite lateral edge.

WILLIAM C. BURNS.