June 7, 1932. G. F. QUINN 1,861,879

RUBBER SOLE

Filed Dec. 26, 1930

Fig. 1

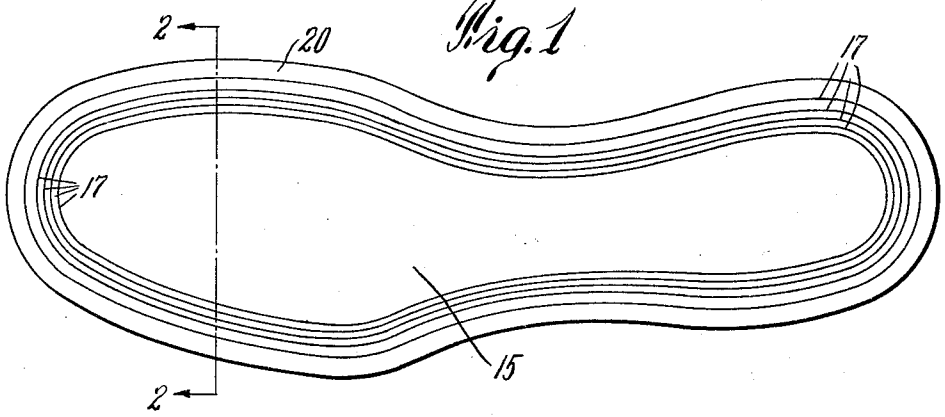


Fig. 2

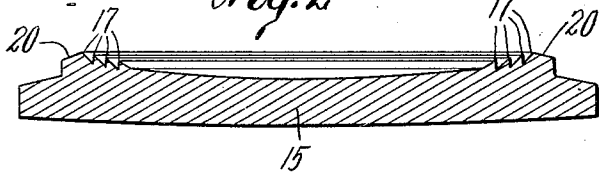


Fig. 3

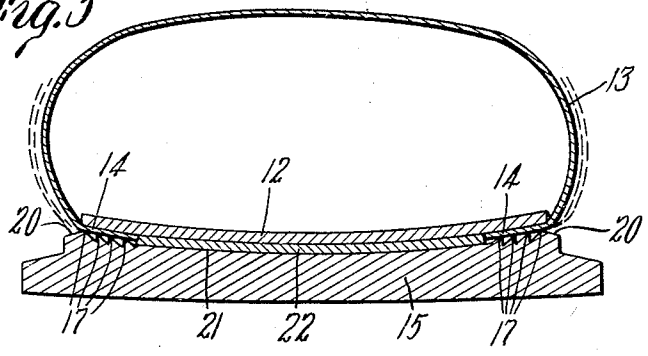
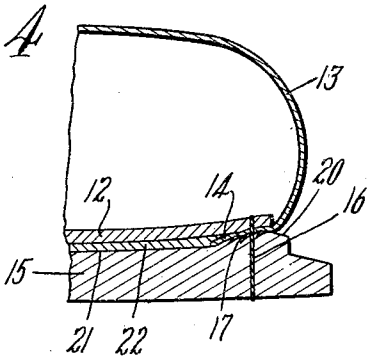


Fig. 4



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UNITED STATES PATENT OFFICE

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RUBBER SOLE

Application filed December 26, 1930. Serial No. 504,728.

This invention relates to a rubber outer sole for use in a shoe which includes an inner sole and an upper lasted on the inner sole and having a marginal flange turned inwardly on the marginal portion of the outer face of the inner sole, said flange constituting a seat for the marginal portion of the inner face of the outer sole.

The object of the invention is to provide a rubber outer sole having a resilient sealing zone adapted to be closely conformed to the turned-in flange of the upper under the insole, by pressure exerted on the outer sole by the fastening means securing it to the upper and insole, and prevent entrance of moisture between the outer sole and all portions of the seat including the irregular folded or puckered portions thereof where the toe and heel portions of the upper are curved and attached to the toe and heel portions of the inner sole.

Another object is to provide a sealing zone adapted to cooperate with outer sole seats of shoes of different sizes, widths and shapes without loss of sealing effect.

Of the accompanying drawing forming a part of this specification,—

Figure 1 is a plan view of a rubber outer sole embodying the invention.

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

Figure 3 is an enlarged cross section of a shoe which includes my improved outer sole.

Figure 4 is a fragmentary cross section similar to a portion of Figure 3, showing the sealing face distorted and more closely conformed to the seat by pressure exerted by the fastening means securing the outer sole.

The same reference characters indicate the same parts in all of the figures.

In the drawing, 12 designates an inner sole, and 13 an upper lasted thereon and having its margin turned inwardly on the outer face of the inner sole to form a flange 14, constituting a marginal seat for a rubber outer sole 15.

In a shoe of the character shown, the outer sole is attached to the upper and inner sole by fastening means 16, which may be formed either by the McKay, the Littleway, the nailing or the standard screw process of shoemaking. The sole may be made of any of the rubber compositions used for rubber soles and heels, and may have any desired degree of resilience.

In carrying out my invention I provide the inner side of the rubber sole 15 with a resilient sealing zone, formed to bear yieldingly on the flange 14, and adapted to be distorted by pressure exerted on the sole by the fastening means, so that said zone may be caused to conform accurately to, and have continuous contact with the flange, including the irregular folded or puckered portions thereof at the toe and heel, and prevent entrance of moisture between the outer sole and all portions of the seat.

Said sealing zone is preferably provided by a plurality of parallel resilient ridges 17 integral with the outer sole and extending entirely around the same, as shown by Figure 1, each ridge having a continuous acute angled apex bearing on the flange 14. Each ridge is preferably about one-sixteenth of an inch high and the apexes of the ridges are preferably spaced about one-eighth of an inch apart.

Four ridges are provided in the present instance, but the number may be greater or less than four. The sealing zone formed by the ridges is inclined upwardly from the inner to the outer edge of said zone, as best shown by Figure 3. When the outer sole is attached, the pressure exerted by the fastening means causes a distortion of the ridges outwardly, as shown by Figure 4, the thin and extremely flexible resilient apexes of the ridges being thus caused to conform to irregularities in the flange 14, such as the usual fold or puckers in the toe and heel portions of the flange, said apexes entering the depressions formed by the folds or puckers. Each ridge therefore constitutes a continuous dam, adapted to prevent the entrance of moisture between the sealing face and the seat 14. The number of ridges is preferably such that the sealing face is of approximately the same width as the flange 14, so that the sealing face is adapted to cooperate with the flanges 14 of uppers of different

sizes. In the larger sizes a smaller number of ridges will contact with the flange 14 than in the smaller sizes.

The outer sole is provided with a shedding face 20, surrounding the sealing face and inclined outwardly and downwardly from the outer margin thereof. Said shedding face and the outer margin of the sealing zone intersect to form a resilient ridge, one side of which is formed by the sealing face and the other side by one of the faces of the sealing zone. At the intersection of said faces is an angular apex which bears on the upper and prevents water flowing down the side of the upper from finding its way to the sealing face, such water being shed or caused to flow outward by the sealing face.

The inner face portion 21 of the outer sole surrounded by the sealing face is somewhat lower than the sealing face, and supports a bottom filler 22.

I claim:

1. A rubber outer sole for a shoe which includes an inner sole and an upper whose marginal portion constitutes an inwardly projecting flange, said outer sole having on its inner face a resilient sealing zone, formed to bear yieldingly on said flange and including a continuous resilient ridge having an acute angled apex contacting with the outer side of said flange and distortable by pressure of the outer sole against the flange, so that the ridge constitutes a dam whose apex is sufficiently flexible to conform closely to folds or puckers at the toe and heel portions of the flanges, and prevent entrance of moisture between the outer sole and all portions of the flange.

2. A rubber outer sole for a shoe which includes an inner sole and an upper whose marginal portion constitutes an inwardly projecting flange, said outer sole having on its inner face a resilient sealing zone, formed to bear yieldingly on said flange and including a plurality of parallel resilient ridges extending around the sole, each ridge having an acute angled apex contacting with the outer side of said flange and distortable by pressure of the outer sole against the flange, so that each ridge constitutes a dam whose apex is sufficiently flexible to conform closely to folds or puckers at the toe and heel portions of the flange and prevent entrance of moisture between the sole and all portions of the flange.

3. A rubber outer sole for a shoe which includes an inner sole and an upper whose marginal portion constitutes an inwardly projecting flange, said outer sole having on its inner face a resilient sealing zone, formed to bear yieldingly on said flange and including a plurality of parallel resilient ridges extending around the sole, each ridge having an acute angled apex contacting with the outer side of said flange and distortable by pressure of the outer sole against the flange, so that each ridge constitutes a dam whose apex is sufficiently flexible to conform closely to folds or puckers at the toe and heel portions of the flange and prevent entrance of moisture between the sole and all portions of the flange, the width of said zone being approximately equal to that of the flange, so that the sealing zone may cooperate with upper flanges of shoes of different sizes.

4. A rubber outer sole for a shoe which includes an inner sole and an upper whose marginal portion constitutes an inwardly projecting flange, said outer sole having on its inner face a resilient sealing zone, formed to bear yieldingly on said flange and including a plurality of parallel resilient ridges extending around the sole, each ridge having an acute angled apex contacting with the outer side of said flange and distortable by pressure of the outer sole against the flange, so that each ridge constitutes a dam whose apex is sufficiently flexible to conform closely to folds or puckers at the toe and heel portions of the flange and prevent entrance of moisture between the sole and all portions of the flange, the sealing zone being transversely inclined so that the outer margin thereof is higher than the inner, the outer sole having a shedding face surrounding the sealing zone, and inclined outwardly and downwardly from the outer margin thereof, said shedding face and the outer margin of the sealing zone intersecting to form a resilient ridge having an angular apex contacting with and conforming closely to the shoe upper, so that the shedding face is adapted to outwardly deflect all water flowing downwardly on the upper.

In testimony whereof I have affixed my signature.

GILBERT F. QUINN.