Aug. 9, 1938. W. K. YOUNGBERG 2,126,077

SHOE SOLE

Filed July 11, 1934

Fig. 1.

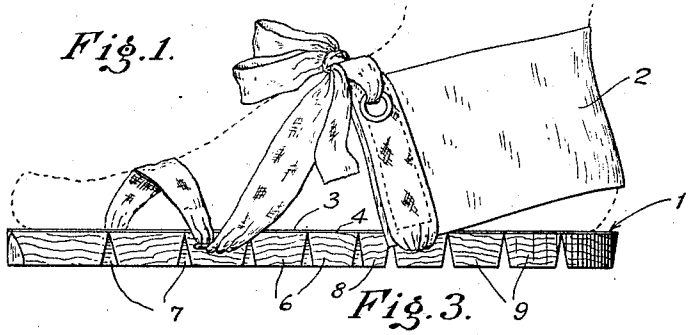


Fig. 2.

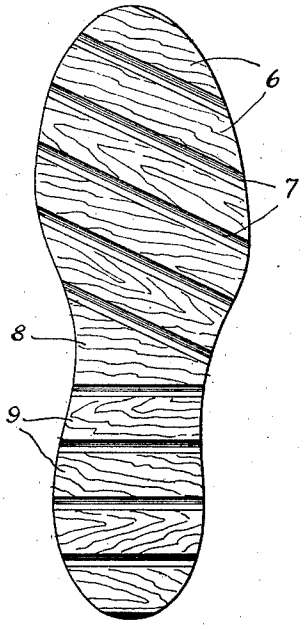


Fig. 3.

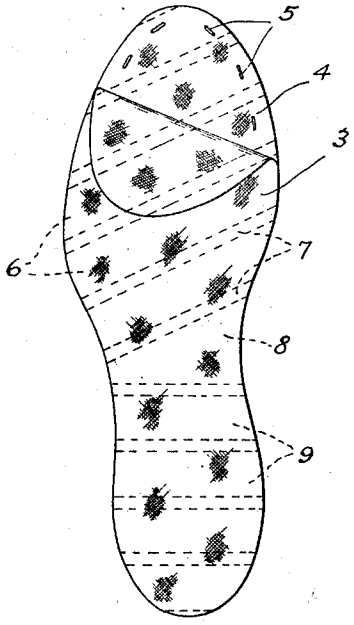


Fig. 4.

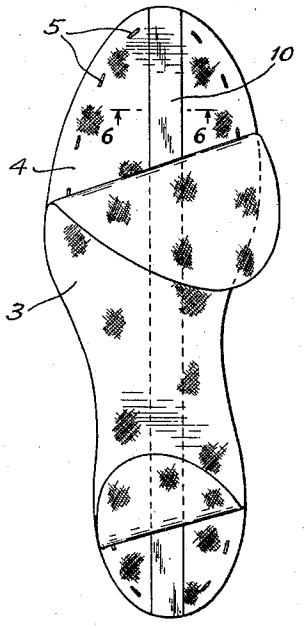


Fig. 5.

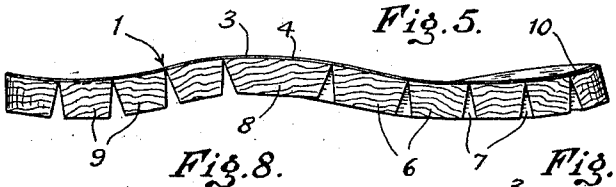


Fig. 7.

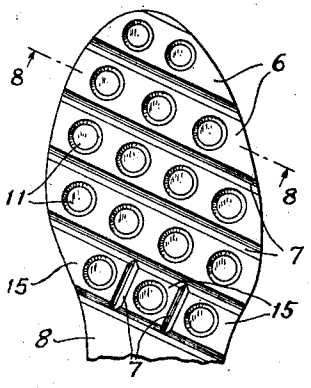


Fig. 8.

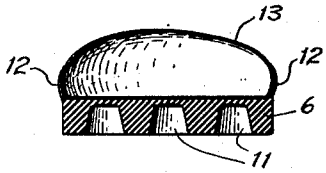


Fig. 9.

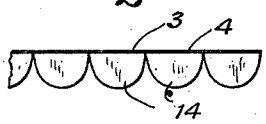
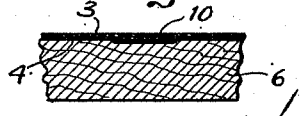


Fig. 6.



INVENTOR:
WALTER K. YOUNGBERG

BY

ATTORNEY.

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SHOE SOLE

Walter K. Youngberg, Meriden, Conn.

Application July 11, 1934, Serial No. 734,652

9 Claims. (Cl. 36—33)

My invention relates to shoes.

It has among its objects to provide an improved shoe sole, and, more particularly, such a sole having a flexible portion carrying substantially less flexible portions forming the tread and in which the flexible portions may flex freely in walking with entire comfort despite the presence of the less flexible tread portions. A further object of my invention is to provide such an improved sole which is adapted to be very inexpensively produced and which not only has excellent wearing qualities and traction, but is extremely flexible and comfortable. A still further object of my invention is to provide such a sole construction which is adapted to use in connection with various forms of shoes, such, for example, as beach sandals or the like, while also being adapted to use in ordinary rubber, canvas, or leather shoes, and in fact with any desired type of upper, while the tread or wearing portions of the sole construction may also be formed of various different materials such, for example, as wood, rubber, leather or the like. These and other advantages of my improved construction will, however, hereinafter more fully appear.

In the accompanying drawing I have shown for purposes of illustration several embodiments which my invention may assume in practice.

In the drawing,—

Figure 1 is a side elevation of a beach sandal constructed in accordance with my improvement;

Figure 2 is a bottom plan view of the sole thereof;

Figure 3 is a top plan view of the sole, one of the cover members being pulled back;

Figure 4 is a view similar to Figure 3 of a modified construction;

Figure 5 is a side elevation of the construction shown in Figure 4;

Figure 6 is a section on line 6—6 of Figure 4;

Figure 7 is a bottom plan view of a further modified construction;

Figure 8 is a sectional view on line 8—8 of Figure 7, and

Figure 9 is a side elevation of a modified form of sole.

In the illustrative construction shown in Figures 1–3, it will be noted that a beach sandal is shown having an improved sole, generally indicated at 1, embodied therein and having a suitable sandal upper 2, including a heel grasping section and suitable tie connections to the sole, so that the same may be secured to the foot in any convenient manner.

Referring more particularly to the sole construction, it will be noted that the same herein includes a sheet of canvas or other flexible and strong material 3 overlying a corresponding sheet of like material 4 and cemented thereto. Herein, it will also be noted that the sheet 4 carries on its under face a series of cleats, the same being herein suitably attached to the sheet 4, as by staples 5. Referring more particularly to the wearing surface of the sole, it will be noted that cleats 6 are disposed diagonally across the ball and toe of the foot. Any suitable number of these cleats 6 is provided, five being illustrated herein extending from the arch to the toe. It will also be noted that the cleats are preferably disposed as shown in Fig. 2, i. e. sloping from the inside of the foot outwardly and toward the rear, with their edges in parallelism. Further, it will be noted that substantially V-shaped slots 7, herein formed by tapering the cleats 6, are provided between the several cleats in such manner as to provide an exceedingly flexible tread adapted to conform to the foot in walking while having a high degree of traction and substantial wearing qualities. Moreover, it will be noted that a wedge shaped member 8, similarly separated by a slot 7, is provided under the arch, and that directly transversely disposed cleats 9 are disposed between this wedge shaped member 8 and the heel, four such cleats 9 herein being illustrated. Thus it will be noted that a sole construction is provided which is exceedingly flexible and which is adapted to conform to the foot in walking without the tensions heretofore present where cleats are used, while also having a high degree of traction and substantial wearing qualities and adequately protecting the bottom of the foot.

As shown in Figs. 2 and 5, the tread portion comprising the cleats 6 is continued from the ball portion of the sole over a part of the shank or instep-underlying portion to member 8, and the tread portion comprising the cleats 9 is continued from the heel portion over a part of the shank. Thus there is provided an instep underlying ribbed portion conforming to the instep during walking and comprising a plurality of tread members disposed transversely of the flexible member with the proximate transverse edges of adjacent members in substantially parallel relation, one of said members having its transverse edges converging toward the outer longitudinal face of the sole.

Herein the cleats 6, 9 and the wedge 8 are formed of wood in such manner as to produce an exceedingly light and inexpensive sole construc-

tion, while also having the qualities above set forth. It will be understood, however, that I am in no way limited to the use of wood, and that rubber, leather, or any other suitable material may be used for the cleats if desired.

Also, as shown in Figures 4, 5, and 6, I may, if desired, provide a thin narrow strip of spring steel 10 conforming to the bottom of the foot and disposed as shown in Fig. 4 and preferably, as shown in Fig. 6, also disposed in a corresponding groove in the various cleats and canvas 4, in such manner as to produce a more unitary construction, while still retaining the advantages of my construction previously described and avoiding any tendency of any of the cleats to sag away from the others or the foot. By this construction, it is also possible to make the sole fit the bottom of the foot more comfortably through the curvature of the sole construction to conform to the foot.

In Fig. 7 I have illustrated a further modified construction which may be used if desired, the same including the provision of a plurality of holes or suction cups 11 disposed along the several cleats. Here, it will be understood that these may be provided in all of the cleats or the wedge member if desired, although they are only shown in connection with the cleats 6 in this figure. This construction is especially adapted to use in constructions wherein the cleats are formed of rubber, as, for example, in so called sneakers, the openings 11 then being adapted to form suction cups tending to increase the traction, although, of course, the depth of the cup may be varied as desired to vary the suction effect. In such a shoe, it will also be evident that the sole cleats may be formed integrally with elements corresponding to the elements 3 and 4 heretofore described, and also with portions 12 adapted to be cemented, molded, or otherwise suitably attached, to an upper 13 formed of any suitable material, such as canvas, rubber, leather, or the like, all while still retaining the advantages of my improved construction set forth above.

In Fig. 9 I have also illustrated a modified construction wherein instead of the cleats having flat treads the treads are rounded as shown at 14. Obviously, if desired, the conformation of the tread may be varied to meet different conditions, or subdivided as shown at 15 in Fig. 7.

As a result of my improved construction it is made possible to produce with the use of wood, for example, an exceedingly comfortable shoe, wherein the sole construction can conform to the movements of the foot in walking, as distinguished from being stiff or creating uncomfortable points or tensions, as where the cleats merely extend uniformly parallel to one another straight across the sole. Moreover, through the use of the wedge, it is made possible to remove any feeling of tension or discomfort under the arch, while, of course, the sole throughout its whole length is free to flex in walking and to give to conform to the foot. Attention is also directed to the fact that the same advantages of my improved construction are obtainable when the same is embodied in a shoe having a usual upper, as, for example, in so called sneakers wherein the upper is usually of canvas, the cleats then being formed of rubber or other more flexible material than wood, which yet is relatively less flexible than the members 3, 4. In such a shoe the cleats are suitably connected as by vulcanizing or cementing to the flexible sheeting 3, 4 carrying the same, while also being similarly connected to the sides of the upper. These and other advantages of my improved construction will, however, be clearly apparent to those skilled in the art.

While I have in this application specifically described certain embodiments of my invention, it will be understood that these are shown for purposes of illustration only and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A shoe sole having an instep underlying ribbed portion conformable to the instep during walking and having flexing joints at different angles to the longitudinal axis of the sole.

2. A shoe sole having an instep underlying ribbed portion, conformable to the instep during walking, said portion including a wedge-shaped member tapering toward the outside edge of the sole and flexibly connected to the ball and heel portions of the sole.

3. A shoe sole having an instep underlying portion comprising a plurality of tread members disposed transversely of the sole with the proximate transverse edges of adjacent members in substantially parallel relation, one of said members having its transverse edges converging toward the outer longitudinal face of said sole.

4. A shoe sole comprising generally transverse articulated tread members disposed over the heel, shank, and ball portions of the sole, the members at the ball portion being disposed at a different angle to the longitudinal axis of the sole than the tread members at the heel portion.

5. A shoe sole comprising a flexible member extending from heel to toe and relatively inflexible tread members carried thereby and extending across the ball, heel, and shank portion of the sole in different angularly related series under the heel and ball portions of said member and disposed so as to flex said flexible member simultaneously in a plurality of angularly related directions transversely of the longitudinal axis of the sole during walking.

6. A shoe sole comprising a flexible member and relatively inflexible generally transverse articulated tread members carried thereby and extending over the ball and shank portions of the sole, said members being arranged to flex the ball portion of said flexible member along lines at the same acute angle to the longitudinal axis of the sole and to flex the rear part of the shank portion of said flexible member along a line disposed at a different angle.

7. A shoe sole having a plurality of generally transverse articulated tread members disposed over and extending across the ball, heel and shank portions of the sole area, the members at the shank portion being arranged to articulate along straight lines crossing the shank at different angles.

8. A shoe sole comprising a flexible member and relatively inflexible generally transverse tread members carried thereby and disposed over the sole area continuously from toe to heel, said members being arranged to flex the ball portion of said flexible member along lines at a predetermined angle to the longitudinal axis of the sole, to flex the heel portion along lines at a different angle, and to flex the shank portion in one place along a line directed at the first mentioned angle and in another place along a line directed at the second mentioned angle.

9. A shoe sole comprising a flexible member, relatively inflexible tread means carried thereby and so disposed that only the flexible member requires flexing during walking, said tread means including sets of cleats disposed at different angles to the longitudinal axis of the sole on the portions of the flexible member engaging the heel and ball respectively of the foot, and a wedge member disposed between the sets of cleats having its opposite transverse edges extending parallel to the transverse edges of adjacent cleats.

WALTER K. YOUNGBERG.