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[73]	Assignee	The Scholl Mfg. Co., Inc. Chicago, Ill.

[56]

References Cited

UNITED STATES PATENTS

2,734,286	2/1956	Anson	36/11.5 X
3,063,458	11/1962	Scholl.....	128/615
3,468,040	9/1969	Fukuoka	36/11.5

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[54] FOOT-MASSAGING SANDAL

10 Claims, 5 Drawing Figs.

[52] U.S. Cl..... 128/582,
36/11.5

[51] Int. Cl. A61f 5/14

[50] **Field of Search**..... 128/582,
581, 614, 615, 25.2; 36/43, 11.5

ABSTRACT: A foot-massaging sandal of flexible construction so that the toe portion may bend relatively to the other part of the sandal during the walking, and the foot-contacting surface of which sandal is provided with irregularly disposed ridges which effect a massaging action on the plantar surface of the foot.

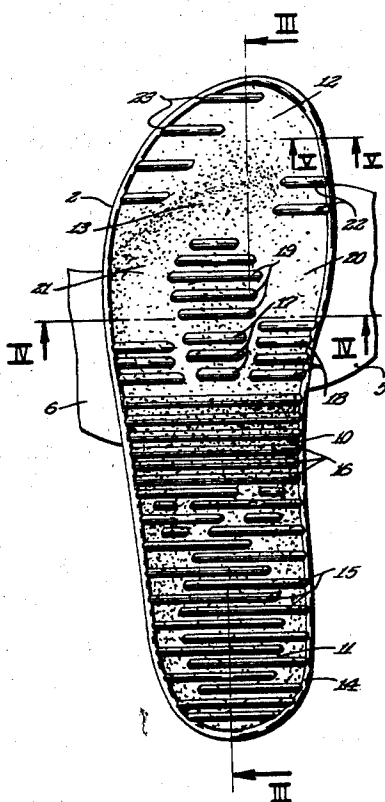


Fig. 1

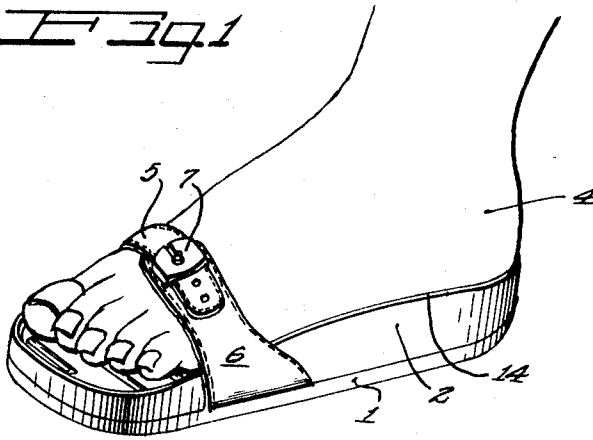


Fig. 2

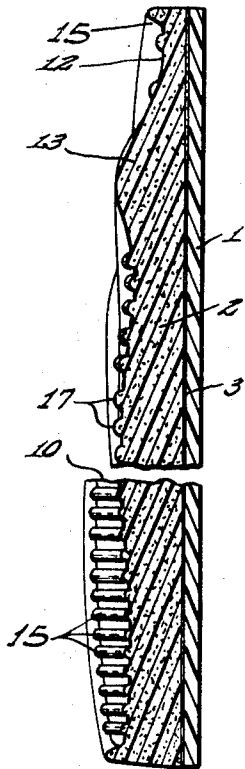
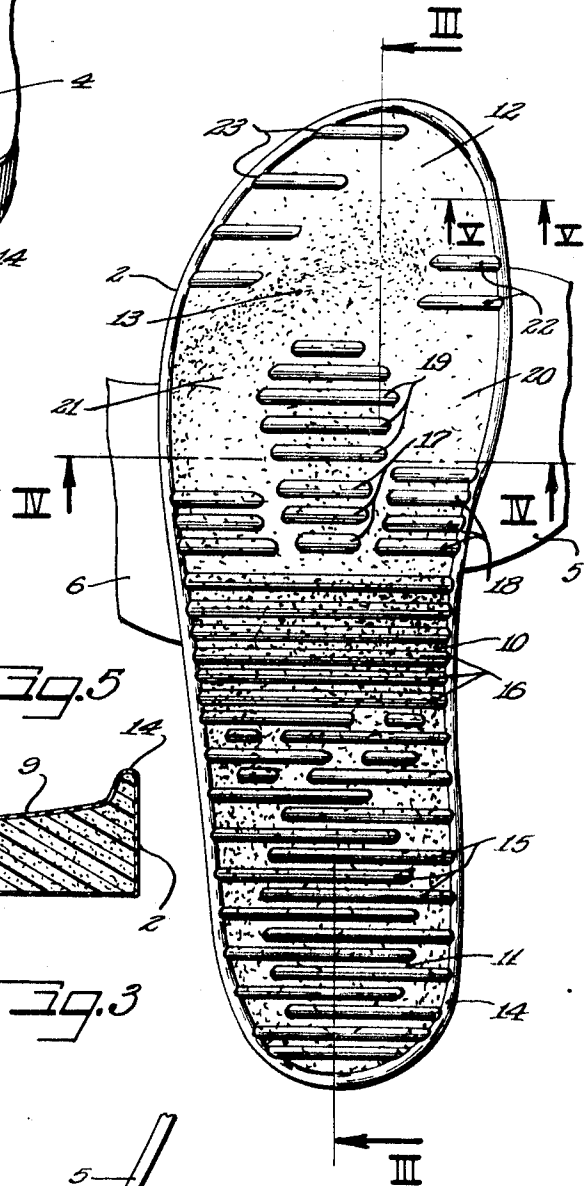


Fig. 5

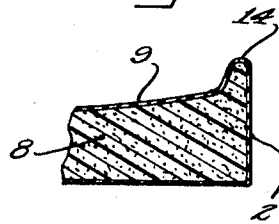


Fig. 3

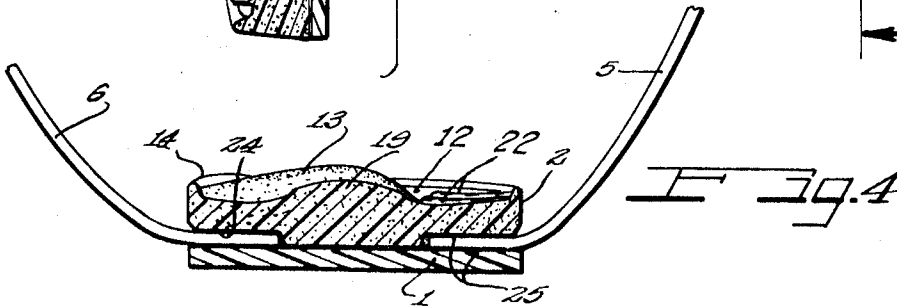


Fig. 4

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FOOT-MASSAGING SANDAL

Heretofore, foot-exercising sandals have been provided consisting of a rigid wooden block contoured on its upper surface in keeping with the plantar surface of the human foot, and provided with a ridge extending substantially transversely across the forward portion of the block to underlie the toes, the construction being such that when the wearer steps, the toes alternately grip and release the elevation so providing exercise for the foot. The upper surface of the block, however, was entirely smooth so that no massaging action occurred.

SUMMARY OF THE INVENTION

The instant invention or discovery not only provides exercising in the manner of the sandal made heretofore, but also massages the plantar surface of the human foot in regions where such massaging is most effective for stimulating, strengthening of the toe and foot muscles, and promoting blood circulation of the foot and the legs. The instant sandal, being preferably flexible, insures proper massaging by the bending of the foot-contacting portion of the sandal along with the outer sole thereof. The massaging is caused by elongated elevations or ridges on the foot-contacting surface of the sandal and these ridges are disposed in irregular order, some long, some short, some higher than the others, and there are variances in the spacing between adjacent ridges and the length of the ridges. Certain portions of the foot-contacting surface are devoid of ridges to eliminate massaging where least necessary and in those locations where massaging might prove painful owing to corns or callouses. Further, the ridges aid in maintaining the sandal properly on the foot.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary perspective view illustrating a sandal embodying principles of this invention in proper position upon a human foot;

FIG. 2 is an enlarged fragmentary plan view of the foot-contacting surface of the sandal;

FIG. 3 is a fragmental longitudinal vertical sectional view taken substantially as indicated by the line III-III of FIG. 2;

FIG. 4 is a fragmentary transverse sectional view taken substantially as indicated by the line IV-IV of FIG. 2; and

FIG. 5 is an enlarged fragmentary transverse vertical sectional view taken substantially as indicated by the line V-V of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the illustrated embodiment of the instant invention there is shown a sandal comprising an outer sole 1 which may be leather, rubber, or a resilient composition of known kind.

A materially thicker insole 2 overlies the outer sole 1 and may be secured thereto by cementitious material as indicated at 3 in FIG. 3. As seen in FIG. 1, the sandal may be maintained upon a foot 4, by a pair of strap elements 5 and 6, the exposed ends of which may be connected by a slidable buckle 7, this buckle 7 being of the same type set forth and claimed in U.S. Pat. No. 3,088,184 issued May 7, 1963.

The insole may be made of various suitable materials, such as polyvinyl chloride foam, polyethylene foam, and others but which is preferably made of molded integral polyurethane foam. The insole may be molded by a known process, and when so molded, as exemplified by the showing in FIG. 5, will have a foam interior 8 yieldable to the weight of a wearer, and this foam is totally encased by tough and denser skin 9 formed by contact with the molds. The skin 9 has a pleasing external appearance and no finishing of the skin is necessary, since the extreme durability of the skin maintains that appearance, and should the insole become dirty, the skin may be cleansed to its original appearance merely by washing the same with water or the like.

The insole is on integral molded piece and any depressions or elevations visible on the surface of the insole will be both in the skin 9 and the softer foam interior 8. All of the contouring of the insole and the provision of massaging elevations results from a single molding operation. The insole is in general contoured in keeping with the plantar surface of the normal foot including an elevated portion at 10 adapted to lie under the longitudinal arch of the foot, a depressed heel seat at 11, a somewhat depressed anterior portion as indicated at 12, and also a generally transverse crest or elevation at 13. This crest 13 extends inwardly from the outer edge of the insole but terminates short of the area receptive of the great toe and is disposed just anteriorly of the metatarsal arch of the foot enabling the four outer toes to extend over the elevation while the metatarsal heads contact the insole at the rear side of the elevation. The elevation increases in thickness until it reaches a relatively greater height under the second and third toes of the foot and then drops off abruptly toward the great toe. In short, this elevation has the general shape of the elevation for similar exercising purpose shown in U.S. Pat. No. 3,063,457 issued Nov. 13, 1962.

For massaging the plantar surface of the foot, the upper face of the insole has forward, central and rear portions provided with a number of generally transversely extending ridges of various widths, heights, and spacing. For example, there is an upstanding ridge 14 forming the bounding edge including the sides of the insole which is for the purpose of maintaining the foot properly seated on the insole. At the rear portion of the upper face comprising the heel seat of the insole there are alternate ridges 15 extending from the bounding ridge 14 but terminating short of the opposite side of the bounding edge so that in the area that is adapted to lie directly beneath the os calcis the ridges are evenly spaced, but adjacent the bounding edge the ridges leave a space over twice as wide therebetween. This arrangement is to concentrate the massaging action directly beneath the os calcis of the foot and lessen the massaging action against the fleshy material adjacent the sides of the heel. In the central portion of the face adapted to lie beneath the longitudinal arch of the foot, there is a series of ridges 16 extending the full width of the insole and spaced closer together than the ridges elsewhere on the insole. Forwardly of the ridges 16 are three relatively short centrally disposed ridges 17 which are adapted to underlie the rear portion of the metatarsal arch of the foot. The ridges 16 and 17 are substantially twice the height of the remaining ridges on the insole to insure proper massaging of the longitudinal and metatarsal arches of the foot where added height is necessary for that purpose. For example, these ridges 16 and 17 may satisfactorily be 2 mm. in height whereas other ridges on the insole may satisfactorily be 1 mm. in height, although those specific dimensions are not critical. Extending inwardly from the bounding ridge 14 and terminating short of the higher ridges 17 are a plurality of ridges 18 on each side of the ridges 17 which are of the lower height. Forwardly of the higher ridges 17, is a series of centrally disposed ridges 19 which are adapted to underlie the forward portion of the metatarsal arch and are of the lesser height. Opposed spaced 20 and 21 adapted to lie beneath the first and the fifth metatarsal heads of the foot are devoid of ridges to avoid painful massage of corns or callouses that frequently form at those points, especially in the case of women after wearing high heel shoes. At the anterior end of the insole there is a pair of short ridges 22 extending approximately to the termination of the elevation 13, which ridges lend a massaging action to the great toe. At the outer forward portion of the insole a series of four short ridges is provided spaced apart in keeping with the length of the four outer toes of the foot, these ridges being forward of the elevation 13. The provision of such ridges as above described stabilizes the foot, and provide adequate massage at the places most needed on the foot, avoiding those regions where massaging may be extremely painful and is not in fact really necessary.

As will be observed in the drawing, the various ridges are at least as wide at juncture with the upper face of the insole as their height whereby they will flex only vertically with flexing of said insole due to the variance in foot pressure while walking in the sandal.

With reference now to FIG. 4, it will be seen that the insole 2 is molded on its underside to accommodate the inner ends of the attaching straps 5 and 6, a recess 24 being formed on each side of the center portion of the inlay in keeping with the shape of the strap end. This arrangement permits V-shaped notches to be cut in the inner end of the straps, and the straps formed over at last so that while the straps are initially flat, they result in having a curvature longitudinally of the foot in keeping with the shape of the natural foot on each side. Accordingly the straps fit more comfortably and the attachment to the foot is firmer. The strap ends are each held by adhesive 25 or other cementitious material to the lower face of the insole at one side and to the upper face of the outer sole on the other side.

From the foregoing, it is apparent that I have provided a strong and durable, yet economical sandal capable of both exercising and massaging the foot, lending emphasis to the parts of the foot needing more massage than other parts.

It will be understood that modifications and variations may be effected without departing from the spirit and scope of the novel concepts of the present invention.

I claim as my invention:

1. A foot-massaging sandal having forward, central and rear portions and comprising:
 - an outer sole with a thicker resilient insole overlying said outer sole and secured thereto;
 - said insole having an upper face on the forward portion of which there is an elevation extending transversely from one side of the face toward the opposite side whereby to underlie and be gripped by the outer four toes of a foot for exercising the same;
 - a plurality of spaced ridges integrally formed with, and up-standing from, the upper face of said insole to exert a massaging action on the foot during use of the sandal;
 - the central portion of said face having said ridges extending substantially the width of said central portion;
 - the rear portion of said face having said ridges extending

from one side and short of the opposite side thereof; said ridges being at least as wide at juncture with said upper face as their height and flexing only vertically with the flexing of said insole due to the variance in foot pressure while walking; and

means for attaching the sandal to the foot of a user.

2. A foot-massaging sandal according to claim 1, wherein said front portion of said face has ridges which are shorter than the ridges on the rear portion of the face.

3. A foot-massaging sandal according to claim 1, wherein said front portion of said face has ridges which are spaced farther apart than the ridges on the rear portion of the face.

4. A sandal according to claim 1, wherein said transverse elevation drops off adjacent to said opposite side to leave an area adapted to receive the great toe of the foot and which area has short ones of said ridges thereon.

5. A sandal according to claim 1, wherein said ridges on the central portion are adapted to underlie the longitudinal arch of the foot and a group of ridges is provided forwardly adjacent to said central portion ridges and adapted to underlie the rear portion of the metatarsal arch of the foot.

6. A sandal according to claim 5, wherein said central portion ridges and said group of ridges are higher than the ridges elsewhere on said face.

7. A sandal according to claim 1, wherein said insole including said ridges is molded integrally from polyurethane foam having a relatively soft foam interior covered by a dense tough skin providing said upper face and including said elevation and said ridges.

8. A sandal according to claim 1, wherein one of said ridges defines the upper bounding edge of said face and other of said ridges have ends merging with said bounding edge.

9. A sandal according to claim 1, wherein said forward portion of the upper face has areas which are smooth and devoid of ridges rearwardly adjacent to said elevation and adapted to receive the first and fifth metatarsal heads of the foot thereon.

10. A sandal according to claim 1, wherein said ridges on the rear portion of said face are adapted to lie under the heel of the foot and are spaced closer in the central area of the rear portion to lie under the os calcis and spaced farther apart at the sides of the rear portion where adapted to lie under the fleshy tissue adjacent the sides of the heel.

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