Feb. 11, 1930. T. J. HOWLAND 1,746,478

BATHING SHOE

Filed June 29, 1929

Fig. 1,

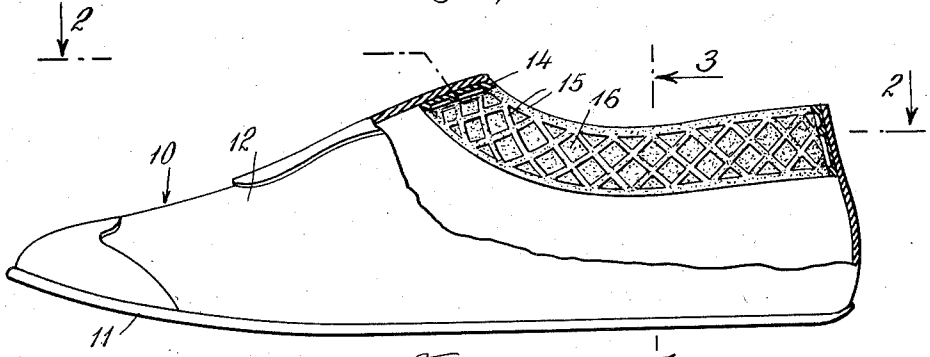


Fig. 2,

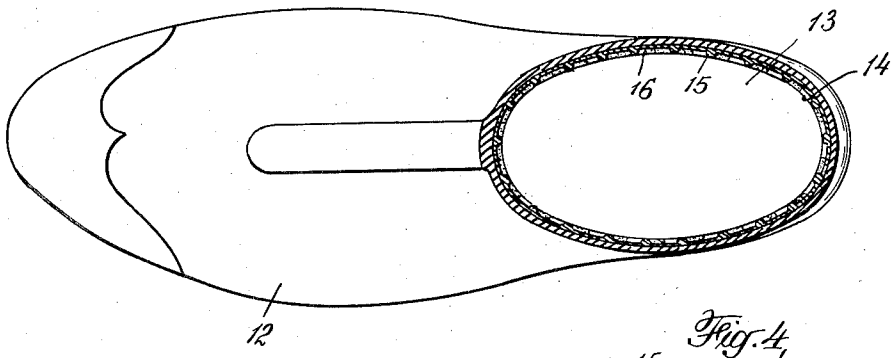


Fig. 3,

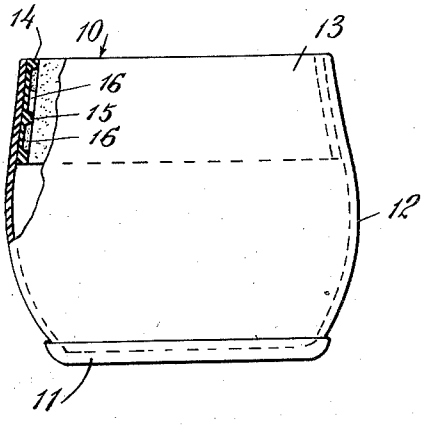


Fig. 4,

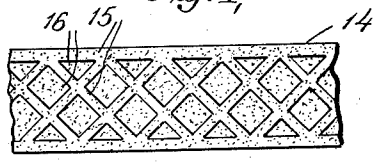
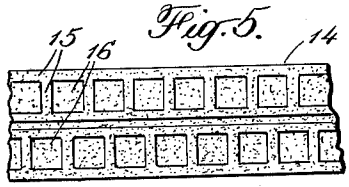


Fig. 5.



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UNITED STATES PATENT OFFICE

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BATHING SHOE

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This invention relates to bathing shoes and provides for a shoe which will prevent mud, sand, slime, grit, etc. from penetrating to the interior thereof.

In bathing, a bather's feet are exposed to sand, gravel, sharp rocks, shells and other sharp substances which are liable to injure them more or less severely. A bather's feet may also come into contact with mud and slime, such contact being very distasteful to a great many people.

Bathing shoes have been used to protect the feet of bathers. These shoes have generally taken the form of low shoes in order not to restrict the freedom of movement of the ankle in swimming. These shoes have also generally been made of light flexible material such as rubber or canvas so as not to restrict the freedom of movement and also not to weigh down the feet while swimming. Great difficulty has been experienced with shoes now in use in that sand, gravel, mud, etc. tend to penetrate within the shoe and lodge between the inner sole and the foot of the wearer thus causing great discomfort to him and rendering the shoe useless for the purpose for which it is used. This difficulty may be partially obviated by tightening the top of the shoe around the opening thereof for the insertion of the foot. This, however, besides restricting the freedom of motion of the foot is apt to restrict the circulation of blood in the foot causing again discomfort. If the opening at the top of the shoe is loosened sufficiently so that the shoe can be worn with comfort, sand etc., will tend to penetrate within the shoe and if the wearer steps into mud, or slime which exercises a pull on the shoe there is danger that the shoe will be pulled off the foot or at least off the heel.

The present invention provides for a shoe which will prevent sand, gravel, mud and other substances from penetrating within the shoe and also prevent the shoe from being pulled off the foot. This is accomplished without excessive tightening around the top of the shoe which would bind the foot and cause discomfort to the wearer.

For an example of a bathing shoe embodying my invention reference is made to the accompanying drawing in which

Fig. 1 is a side elevation of the shoe partly in cross section;

Fig. 2 is a plan view of the shoe showing the band in a cross-section taken through line 2—2 of Fig. 1;

Fig. 3 is a vertical end view showing a part of the band in cross-section on a line 3—3 shown in Fig. 1;

Fig. 4 is a plan view of a section of the band; and

Fig. 5 is a plan view of a section of a band having a different arrangement of the ribs and cups.

The bathing shoe 10 comprises a sole 11 and a top 12 preferably of a light elastic material such as rubber but other light, flexible materials may be used to advantage. The sole 11 need not be of the same material as the top 12 of the shoe and may be of some light stiff material if desired. In the particular embodiment of the invention shown in the drawing, the sole 11 is made of a sheet of rubber having sufficient thickness and strength to protect the sole of the foot. The top 12 is composed of rubber having greater elasticity than the material comprising the sole. The top 12 is provided with an opening 13 to permit the insertion of the foot within the shoe.

A band 14 is arranged along the inside edge of the opening 13. This band may be formed into the material composing the top of the shoe or may be a separate band attached thereto.

The band 14 is composed of a plurality of ribs 15 forming cups or hollows 16 therebetween. The band may comprise a single or greater number of rows of cups separated by ribs. In Fig. 4 the band 14 comprises a series of crossed ribs forming diamond shaped cups therebetween. While this arrangement has been found particularly effective, other forms can be used with good results, e. g., the hollows or cups may be round, square, or oval shaped, etc. As before stated, a single row of cups produces good results.

In Fig. 5 two rows of cups are used and they are separated by a channel or groove 17

which acts as a trap for any substances which should penetrate beyond the first row.

The ribs 15 should have sufficient rigidity so that when stretched they will not upset and destroy the vacuum effect of the cups. The rigidity of the ribs 15 depends on the material of which they are formed, their width and the depth of the cups. The ribs are more effective as sealing surfaces if they are narrow as shown in the drawing for they will sink into the flesh more easily and have a greater gripping effect but the invention is not limited to this form and the width of the ribs 15 need not be uniform.

The elasticity of the material composing the top of the shoe will serve to press the band 14 into close engagement with the skin. If desired, this effect may be increased by placing a reinforcing band (not shown) of elastic material along the outside edge of the opening 13.

The band 14 so pressed into close engagement with the skin will sink into the flesh and anchor the edge of the opening 13 to the foot. The shoe, in this manner, is firmly attached to the foot and cannot be removed by a sudden jerk such as occurs when walking in mud or soft sand. Furthermore, there is an effective seal along the edge of the top of the shoe preventing gravel, sand and other small particles from working their way to the interior of the shoe.

The band 14 is shown as being disposed along the entire edge of the opening 13 and this is the most effective arrangement but the band 14 may be interrupted, for instance, over the instep without materially affecting the result. At this point, due to the shape of the foot the edge of the shoe is in such close contact with the skin that there is little danger of any particles penetrating within the shoe and any pull on the shoe will not tend to move the edge of the opening 13 at this point but rather at the heel and along the sides of the foot.

Where it is desired to use some light flexible but inelastic material for the shoe top the band may be attached along the inside edge of the opening in the shoe top but some provision will have to be made for lacing up a portion of the opening in order that the band may be pressed into close contact with the skin.

I claim:

1. A bathing shoe comprising a sole, a top of flexible material having an opening for the insertion of the foot, a plurality of ribs forming cups therebetween arranged along the inside edge of said opening and a groove separating the row of cups nearest the edge of said opening from the other cups to trap any substances which should penetrate said first row of cups.

2. A bathing shoe comprising a sole, a top of flexible material having an opening for the insertion of the foot, rows of cups arranged along the inside edge of said opening, two or more of said rows of cups being separated by grooves for trapping any substances which should penetrate as far as said grooves.

3. A bathing shoe comprising a sole, a top of flexible material having an opening for the insertion of the foot, the inside edge of said opening being provided with a row of cups and a groove for trapping any substances which should penetrate said row of cups.

4. A bathing shoe comprising a sole, a top having an opening for the insertion of the foot, said top having an elastic, flexible, body-gripping edge portion, at least a portion of the inside of such edge portion being provided with cups or air pockets formed by a plurality of ribs which, due to the elasticity of the material, contact with the foot and thereby prevent substances from passing beneath the edge of the top at those places.

In testimony whereof I affix my signature.

THOMAS J. HOWLAND.