May 22, 1934. H. C. HEBIG 1,959,359

FOOTWEAR

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Fig. 1.

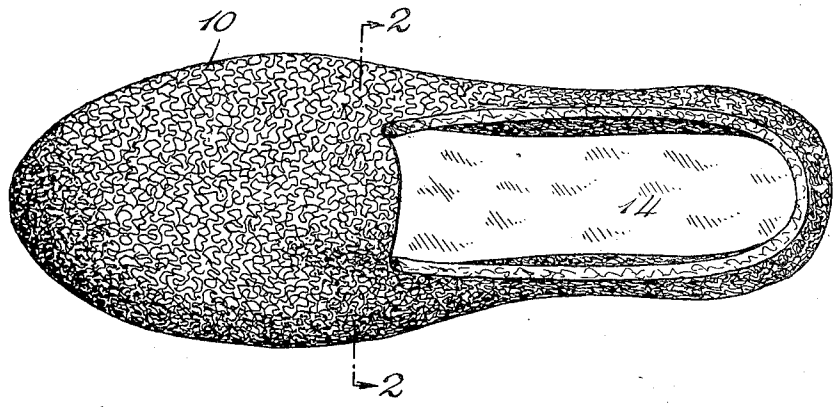


Fig. 2.

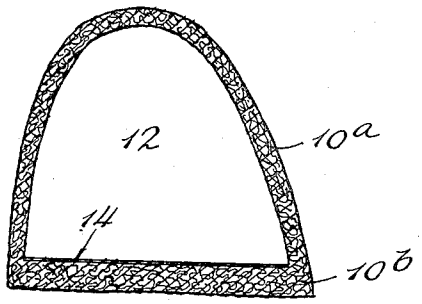


Fig. 4.

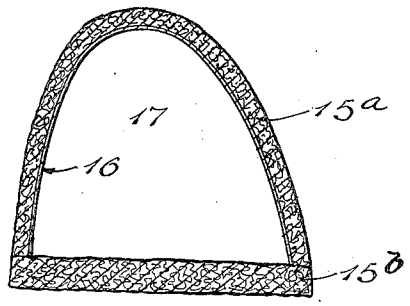
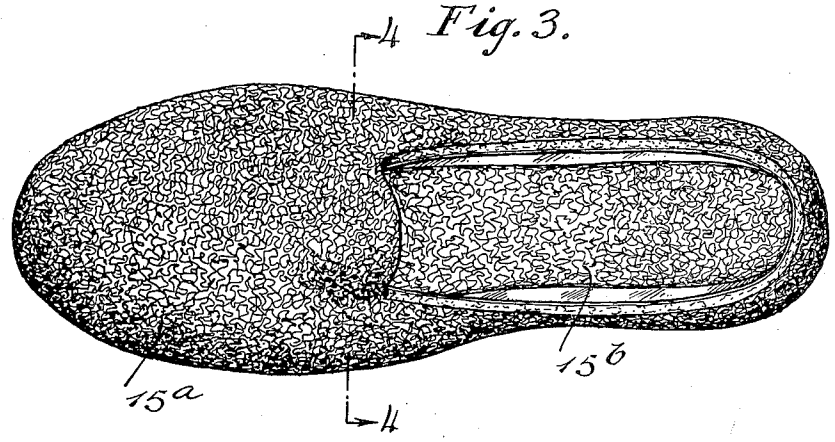


Fig. 3.



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Fig. 5.

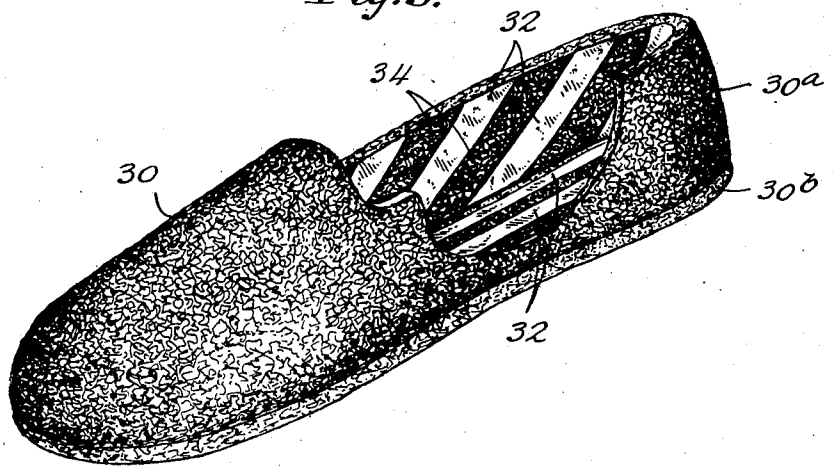


Fig. 6.

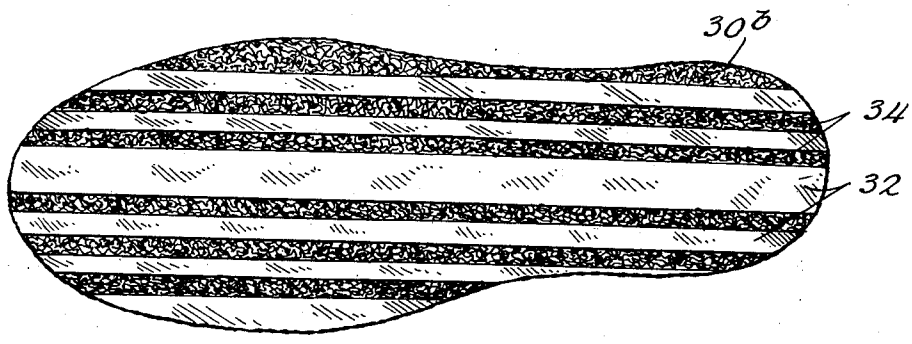
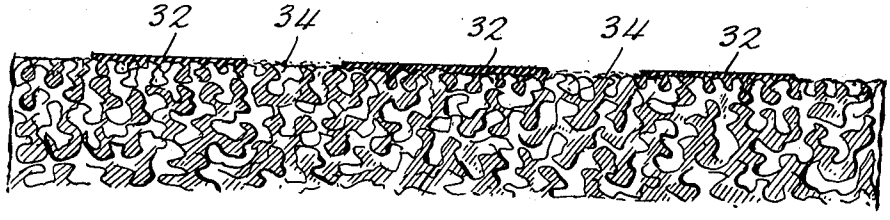


Fig. 7.



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Patented May 22, 1934 1,959,359

UNITED STATES PATENT OFFICE

1,959,359

FOOTWEAR

Henry Conrad Hebig, Miami, Fla., assignor of fifty-five per cent to Nelson Littell, New York, N. Y.

Application December 28, 1929, Serial No. 417,055

13 Claims. (Cl. 36—4)

This invention relates to new and useful improvements in footwear, particularly, bathing shoes, lounging slippers or sandals made substantially of sponge rubber and is a continuation in part of my copending application Ser. No. 389,341, filed August 30th, 1929, Patent No. 1,742,176, dated December 31, 1929.

It is the principal object of this invention to construct a pair of bathing sandals lounging slippers, or bedroom shoes substantially entirely out of sponge rubber for use in bathing to prevent slipping on smooth surfaces and to provide comfortable lounging slippers, as described in my said previous application now Patent No. 1,742,176. These shoes may be constructed only partially out of sponge rubber and partially of other materials such as vulcanized rubber.

It is another object of my invention to provide a bathing sandal or shoe having a sole of porous sponge rubber, which does not slip on smooth surfaces and which is easy for the foot to slip into and out of.

Another object of my invention is to provide a sponge rubber shoe in which the normal skin on commercial sponge rubber is retained on one portion of the inside of the shoe and is removed from another portion.

Another object of my invention is to provide a sponge rubber shoe or lounging slipper which is entirely porous in one portion and which is provided with a smooth surface on another portion to permit ready insertion of the foot.

Another object of this invention is to provide a sponge rubber slipper having a sponge rubber sole on which the normal smooth skin is retained on one portion to facilitate the insertion of the foot and is removed from another portion for insuring porosity and to absorb perspiration of the foot.

Other objects of my invention will appear from the following description thereof taken in connection with the attached drawings illustrating preferred forms of embodiment thereof and in which:

Figure 1 is a top plan view of an all sponge rubber shoe.

Figure 2 is a center section through the shoe shown in Figure 1, taken substantially on the line 2—2.

Figure 3 is a top plan view of a modified form of an all sponge rubber shoe.

Figure 4 is a center section through the shoe shown in Figure 3, taken substantially on the line 4—4.

Figure 5 is a perspective view of a sponge rubber shoe of a still further modified form with parts cut away to show the internal construction.

Figure 6 is a plan view of the sole of the shoe shown in Figure 5.

Figure 7 is a greatly enlarged view of a sponge rubber section.

In my prior copending application, I have described a bathing and lounging slipper which is more comfortable to wear than the ordinary bedroom slipper and which when used for bathing is especially suitable because of its sponge rubber construction and which will effectively prevent slipping on any wet soapy surface, such as the floor of a turkish bath or in a bath tub or shower and which is very useful at the beach, where the combined sand and water would normally destroy other materials.

In the use of sponge rubber shoes and slippers, it is desirable to have the porous and absorptive sponge material in contact with the feet as this provides a more healthful shoe. On the other hand, sponge rubber has a clinging effect and is somewhat difficult to pull on and off the foot due to the tendency of the spongy material to cling to that portion of the foot or stocking which it touches. Where the natural smooth skin of the sponge rubber is left on the interior of the foot, this difficulty is overcome and the foot slides into and out of the shoe or slipper, but the skin is less pervious than the porous sponge material and therefore reduces the porosity and absorptive effect. I have therefore found it desirable to combine these two features and provide a shoe in which a portion of the interior thereof is provided with the natural smooth skin of sponge rubber whereby the foot may be easily slid into and out of the shoe and another portion is provided with the exposed spongy layer which is porous permitting air to pass readily through the shoe and ventilate the foot and which is also absorptive and which will take up any perspiration of the foot. This combination of rubber and rough-textured sponge can be worked out in many forms, of which the present drawings illustrate only a few.

In a preferred form of construction as shown in Figure 1, the shoe or slipper 10 is made out of porous sponge rubber and it particularly comprises the upper portion 10*a* and the lower or sole portion 10*b*. These portions may be formed from a single block of sponge rubber although they are preferably formed in separate parts and glued or cemented together. The opening 12 is adapted to receive the foot of the wearer and

the resilience of the rubber is sufficient to cause the shoe to cling to the foot.

The shoe may be formed by molding or cutting but the preferred manner is to cut pattern soles from a block of sponge rubber by the use of suitable dies. The uppers are similarly formed and are then glued or cemented to the sole portions. The uppers may be cut to different shapes and combined in this manner with the soles to form a finished shoe product. Any commercial glue or cement that is suitable may be used. Such cement frequently adheres with greater resistance than the strength of the rubber itself so that tearing is prevented.

With the formation of separate sole and upper portions, the shoe may be made more nearly according to size and will have a better shape and appearance. It is also possible to remove the skin where desired, as for example, from the upper and still leave the skin on the foot contacting side of the sole portion, or to form the upper of porous sponge rubber and the sole of smooth vulcanized rubber or vice versa.

When placing the shoe on the foot it will be found that the sponge rubber interferes with the insertion of the foot because of its high co-efficient of friction and to obviate this it is desirable to leave the skin 14 on the sole portion or to form the sole portion of smooth vulcanized rubber so that the foot may slip readily into the shoe. This skin is a natural formation on artificial sponge rubber and it is merely necessary to leave it on the sole portion and to remove it from the upper portion 10*a*. It is also desirable to remove it along the edge of the sole portion adjoining the upper portion so that a more firm contact will be had in the cemented joint between the upper and the sole.

With the skin removed from the inside and also from the outside of the upper portion, the shoe is porous and the foot will not perspire as would be the case in a non-porous rubber shoe. As the skin has also been removed from the bottom of the sole, the shoe has a good contact with the surface and does not easily slide. Being porous, however, it does not stick to the surface and can be raised and moved with facility.

A modified form of construction is shown in Figures 3 and 4. In this construction the skin has been removed from the surface of the sole portion 15*b* but has been retained on the upper portion 15*a*. The skin 16 thus appears on the entire under-surface of the upper permitting the foot to readily slip into the shoe in the portion 17.

In this construction the sole portion is fully porous and the water will pass through the sole which makes it of advantage in a shower or in other bathing. With the porous sole 15*b* there is also no chance for perspiring when the shoe is used as a lounging slipper although the skin 16 on the upper permits the foot to be inserted into the shoe with considerable ease. The sole portion 15*b* in this construction is fully porous and differs from the sole portion 10*b* in Figure 2 in that the sole portion in Figure 2 is porous and prevents formation of a vacuum although the water will not penetrate through the skin 14.

A further modified form is shown in Figures 5, 6 and 7. The all sponge rubber shoe 30 is provided with the upper portion 30*a* and the sole portion 30*b*. As before mentioned, the upper and sole portion may be formed by cutting patterns from blocks of artificial sponge rubber and the sole portion as shown in Figure 6 may be laid out and cut from one block of artificial sponge rubber and a suitably cut upper portion laid out and cut from another similar block of rubber may be cemented thereto. In this modification, however, the skin 32 has not been entirely removed from either the upper or sole portions 30*a* and 30*b* respectively. The skin, however, has been partially removed to permit increased porosity and so that the air may penetrate the shoe and so that perspiration and other moisture may be absorbed by the sponge rubber.

In the upper portion the skin 32 has been retained in angled strips which progress from the top downward and forward. This is the natural direction of movement of the foot and the foot therefore contacts with this angled strip so that the foot will readily slip into the shoe. Between the angled strips the skin has been removed and the shoe is therefore substantially porous throughout such a large portion of its area that perspiration of the foot is readily absorbed.

The sole portion 30*b* particularly shown in plan view in Figure 6 shows the preferred cutting and removal of the skin to aid the foot in slipping into the shoe. In this construction the white strips are the strips of skin 32 which are separated from each other by strips of sponge rubber 34. As shown in Figure 7, the strips 34, appearing in Figure 6 are in reality depressions in the sponge rubber block and the strips 32 are the strips of the integral skin. By cutting off the surface skin which is non-porous the strips 34 of sponge rubber appear and these are porous and open up porous conduits throughout the block of rubber.

The strips 32 of skin extend substantially longitudinally of the sole. This is also for the purpose for facilitating and aiding the insertion of the foot in the slipper. The natural course of the foot is forward and as the sole of the foot contacts with the projected skin strips which are smooth, the foot will readily slide into the shoe. With the skin removed, between the strips however, the shoe is fully porous both on top and on the bottom and has material advantages when in use.

In bathing or in using as a lounging slipper it is particularly light, comfortable, durable, warm to the touch and ventilated. It is noiseless for walking, absorbs any perspiration from the feet, is soft to the touch and clings to the foot and as it will not slip on soapy surfaces, it is very useful about the house, in the bath, or at the beach.

It will be understood that the article described may be made up in many various ways, as a shoe, slipper mule, scuff or bootee and may have all or one portion made of sponge rubber and the other portions of different materials. The term "non-porous" used to describe the skin portions 14, 16, or 32 is a relative term as this thin rubber skin is substantially but not absolutely non-porous. The various portions may be of different colors as desired and other modifications may be made and it is my intention to consider within the scope of this invention similar rubber sponge devices adapted for the similar purposes hereinbefore mentioned, unless otherwise excluded by the following appended claims.

I claim:—

1. A shoe having a sole formed of sponge rubber which is of substantially uniform porosity and is provided with intercommunicating openings extending from the interior to the exterior whereby air and water may freely pass therethrough in both directions and an upper portion of uniformly porous sponge rubber, said upper

portion being provided with a surface skin to facilitate the insertion of a foot.

2. A shoe having a sole formed of sponge rubber which is of substantially uniform porosity and is provided with intercommunicating openings extending from the interior to the exterior whereby air and water may freely pass therethrough in both directions and portions of said sole having a nonporous skin thereon to facilitate the insertion of a foot.

3. A shoe having an upper and a sole formed of sponge rubber which is of substantially uniform porosity and is provided with intercommunicating openings extending from the interior to the exterior whereby air and water may freely pass therethrough in both directions and a smooth surfaced skin on portions of said upper and sole to facilitate insertion of a foot therein without decreasing the porosity.

4. A shoe having a sponge rubber upper of substantially uniform porosity with relatively small intercommunicating pores which render the rubber porous and absorbtive throughout, the pores opening on the inner surface being adapted to contact directly with the foot and those on the exterior being exposed to the atmosphere whereby air may pass through the pores into the shoe to ventilate the foot and perspiration of the foot will be absorbed and smooth surfaced means projecting above the surface of porous rubber to contact with the foot as it is being inserted, said means extending longitudinally of the shoe and in the direction of movement of the foot as it is inserted therein.

5. A sponge rubber shoe having a body portion and a sole portion, one of said portions having a section of the natural skin of sponge rubber on the inside thereof whereby insertion and removal of the foot is facilitated, said portion having a section on the inside thereof from which the skin has been removed to promote the porosity and absorptiveness of the shoe.

6. A sponge rubber shoe having a sole portion and an upper portion, one of said portions being formed of artificial sponge rubber, said sponge rubber portion having a non-porous foot contacting portion to facilitate insertion of the foot and a porous portion to reduce sweating and to aid ventilation of the foot.

7. A rubber shoe of the class described, comprising a sole portion and an upper portion, one of said portions being formed entirely of porous artificial sponge rubber, and integral means to facilitate the insertion of a foot in said shoe extending over a limited part of the other portion of the shoe in contact with the foot so that the shoe is substantially porous.

8. A rubber shoe of the class described, comprising a sole portion and an upper portion, one of said portions consisting of sponge rubber, means to secure said portions together, and means on one of said portions to facilitate the insertion of the foot therein, said means including strips extending along the natural line of movement of the foot.

9. A shoe of the class described comprising a porous body portion of sponge rubber and a sole portion, said body portion having an exposed sponge rubber surface, the porosity of the sponge rubber promoting ventilation, said sole portion having an impervious skin on the upper surface thereof, said skin facilitating insertion of the foot and preventing entry of moisture through the sole.

10. A shoe of the class described comprising a porous body portion of sponge rubber to promote ventilation and a sponge rubber sole portion having the natural skin of sponge rubber retained on the upper surface to facilitate the insertion of the foot.

11. In a rubber shoe of the class described having an upper and a sole, said upper and said sole each having a porous absorptive sponge rubber section contacting with the foot to promote ventilation and absorption, and a non-porous, non-absorptive section to facilitate insertion and removal of the foot.

12. A shoe including a sole made up of a plurality of layers of rubber, said sole having a porous sponge rubber surface presented downwardly and having on its upper surface a layer of rubber skin in narrow longitudinal spaced sections extending along the length of the sole and in the direction of movement of the foot in entering and leaving the shoe.

13. A sponge rubber shoe having an upper portion and a sole portion, both of said portions being formed of porous sponge rubber having a porous outer surface, the inner surface of the upper and the sole having a part of the integral vulcanized rubber skin retained thereon, and a part of the integral vulcanized rubber skin removed, the integral vulcanized rubber skin being retained in strip portions along the normal path of movement of the foot in moving into and out of the shoe to facilitate such movement, the parts of the sole and upper from which the skin is removed reducing sweating and facilitating transfer of moisture and air.

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