June 5, 1934. S. I. PIKE 1,961,910

FOOTWEAR

Filed Aug. 9, 1930 2 Sheets-Sheet 1

Fig. 1.

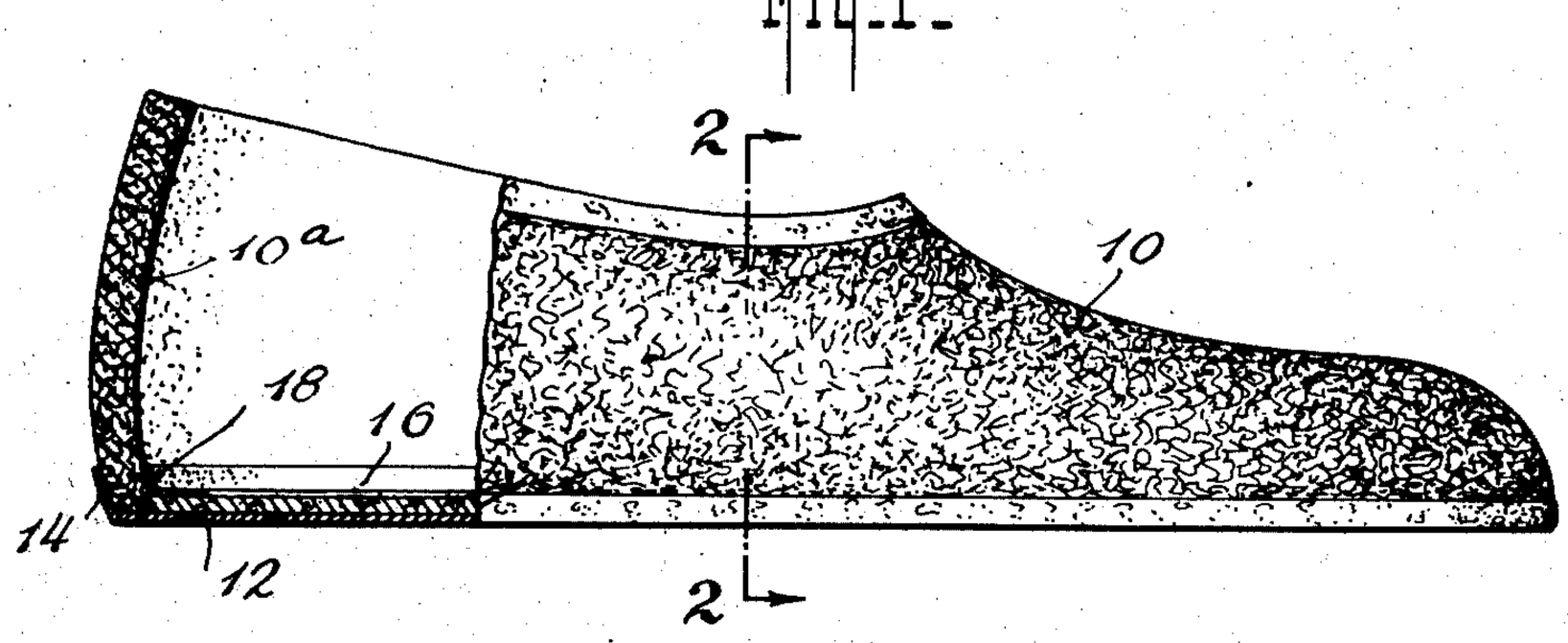

Fig. 2.

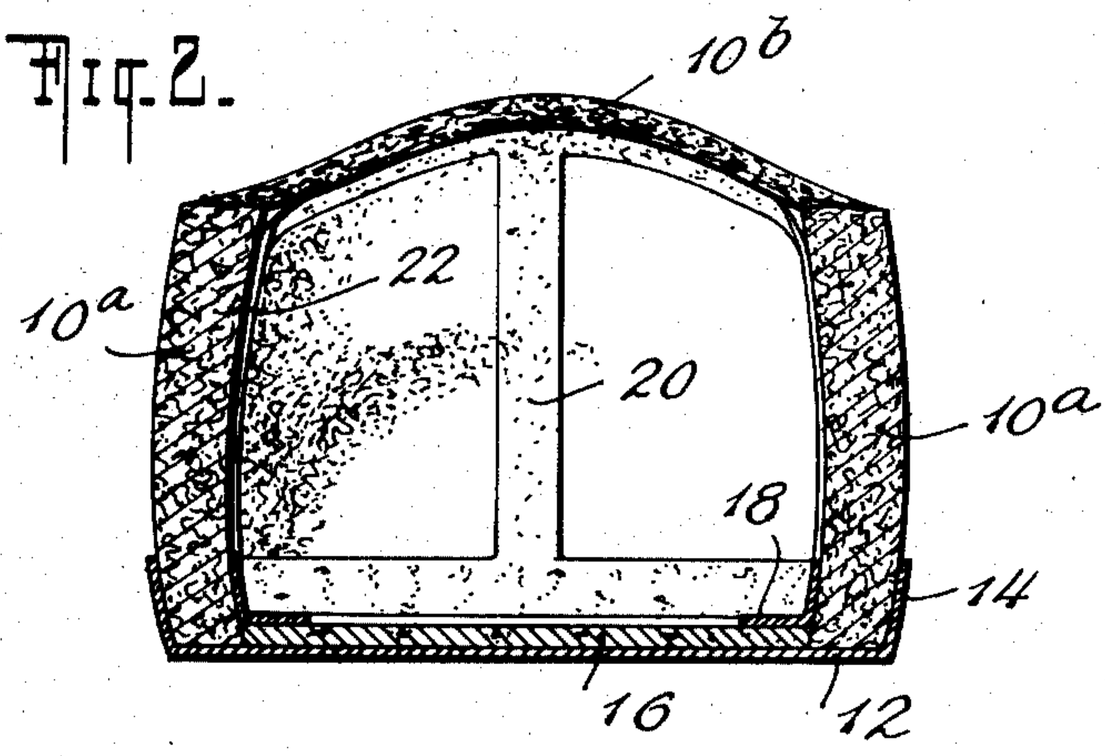

Fig. 3.

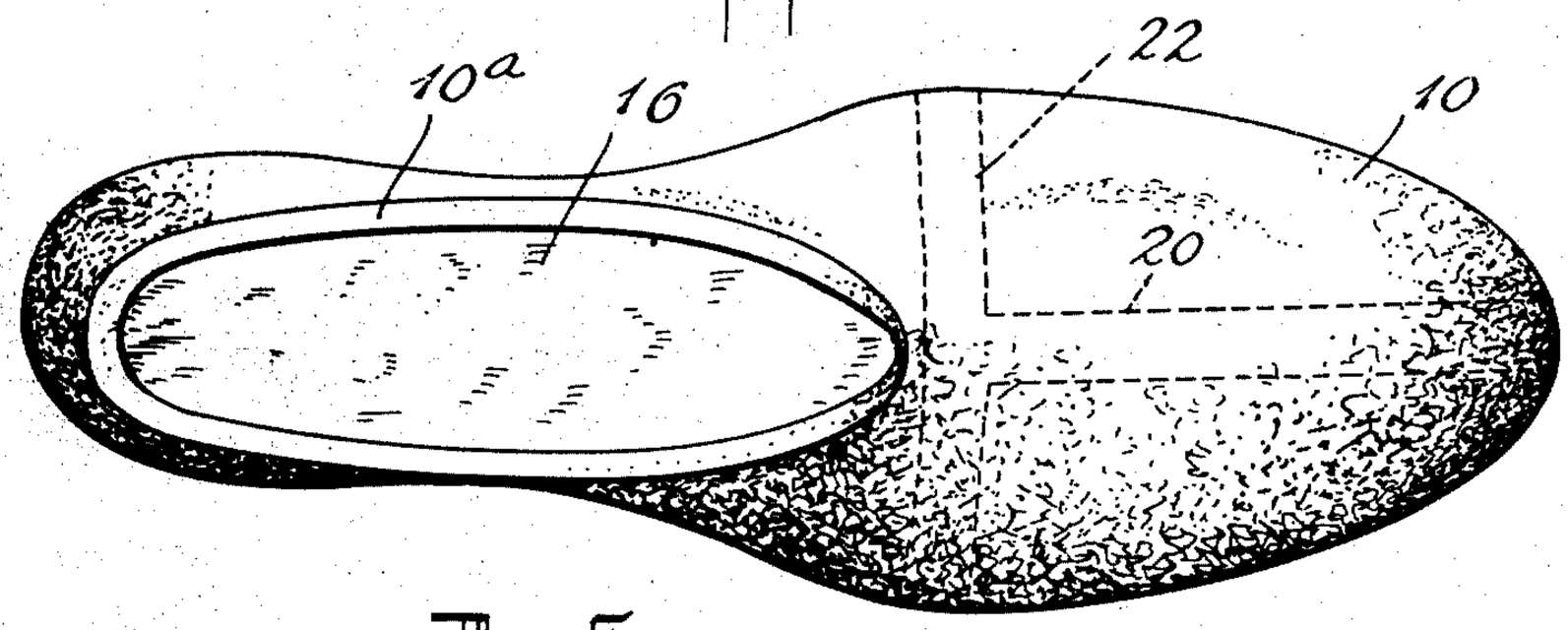

Fig. 4.

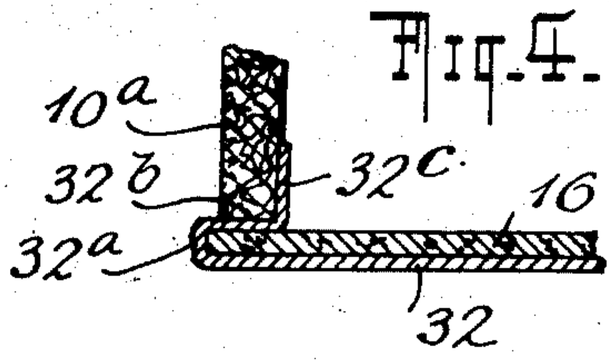

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Fig. 5.

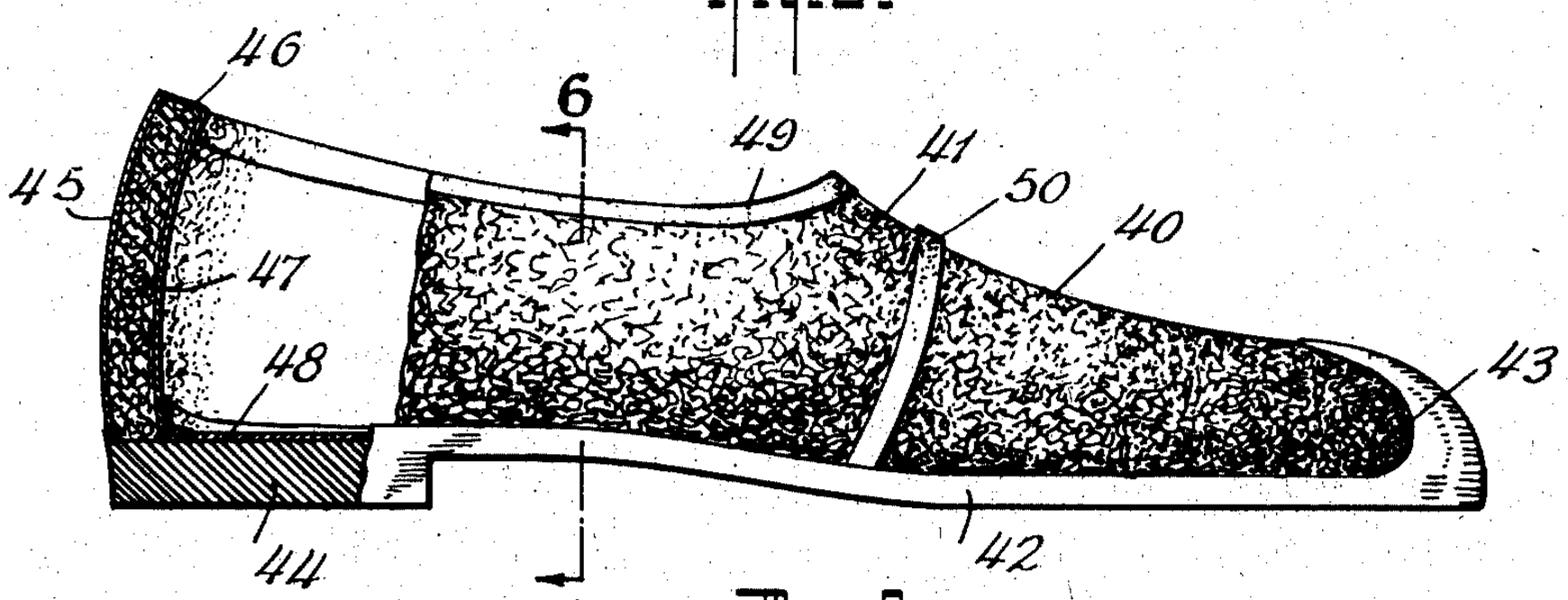


Fig. 6.

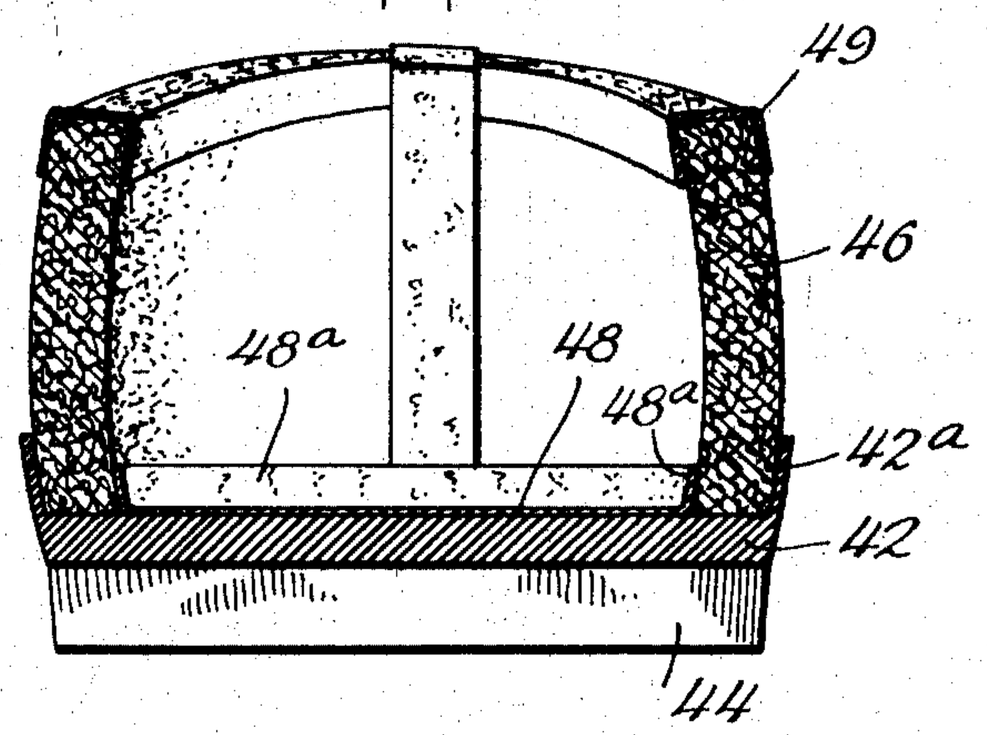
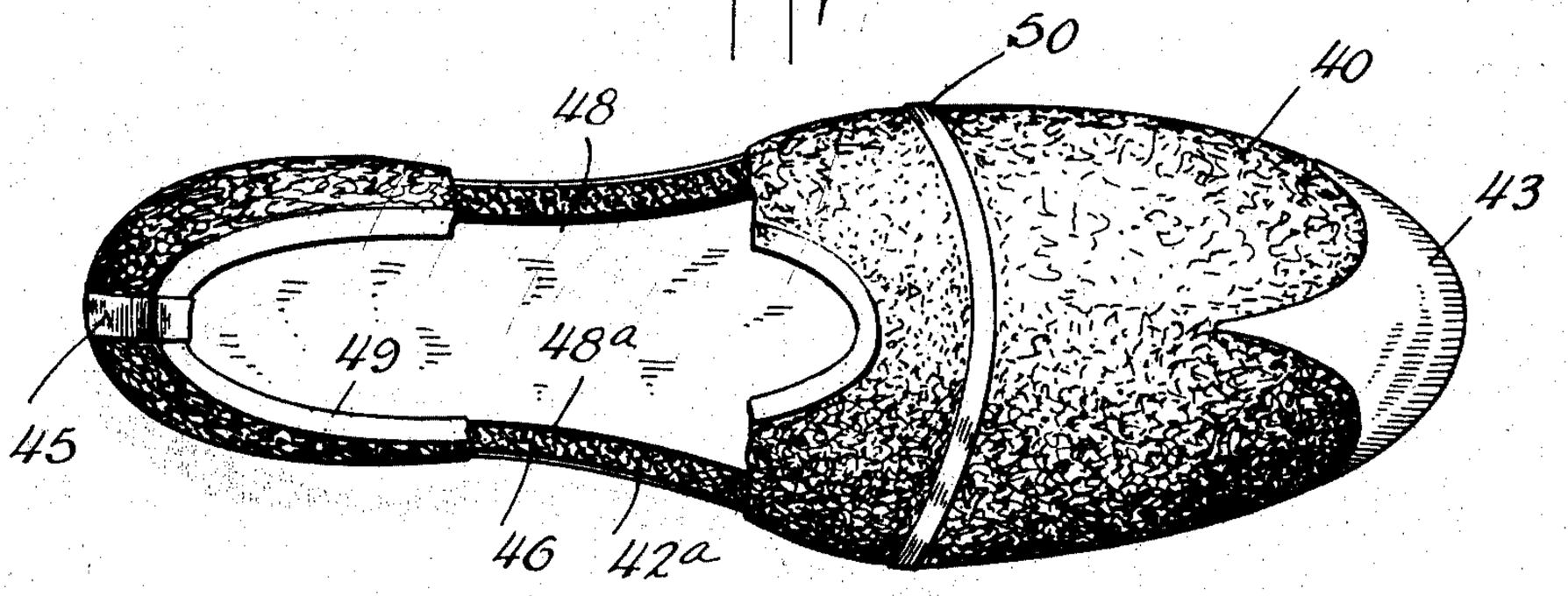


Fig. 7.



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Patented June 5, 1934 1,961,910

UNITED STATES PATENT OFFICE

1,961,910

FOOTWEAR

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Application August 9, 1930, Serial No. 474,169

11 Claims. (Cl. 36—4)

This invention relates to new and useful improvements in footwear particularly bathing shoes, bath slippers and sandals partially made of sponge rubber and is an improvement on U. S. Patent No. 1,742,176, dated December 4, 1929, and granted to Henry C. Hebig, which describes a shoe made partially of sponge rubber having many advantages of porosity and comfort and absorptiveness over all other forms of rubber footwear. In the present invention certain modifications have been made in shoes of similar nature to improve the shapeliness and strength of sponge rubber shoes.

It is the principal object of this invention to construct a pair of bathing shoes, bath slippers or sandals which have the dual advantage of sponge rubber to permit ventilation and comfort for the foot and with a vulcanized or crepe rubber sole for greater comfort in walking over sharp stones or pebbles and to hold the shape of the shoe.

It is another object of my invention to provide a pair of bathing sandals, bath slippers or shoes having an upper of sponge rubber reenforced by crepe or semi-rigid vulcanized rubber binding.

Another object of my invention is to provide a sponge rubber shoe for use as a bathing slipper, sandal, bedroom shoe or other footwear which is provided with a semi-rigid lined sole made of cork or rubber and having a reenforced upper of sponge rubber.

Another object of my invention is to provide a bathing sandal or shoe having a sole of crepe or vulcanized rubber or similar material which is attractive in appearance and which holds its shape when the foot is placed therein.

Another object of the invention is to provide a slipper or bathing shoe having a relatively stiff waterproof crepe rubber sole and reenforced with rubber and having a cork composition liner having the advantages of flexibility, comfort, porosity and rigidity for walking and having a snug fit at the opening.

Another object of this invention is to provide a rubber sponge shoe having a reenforced cork and crepe rubber sole which has the appearance of a welt and which has a more effective manner of securing the upper to the sole by cementing along the top face of the sole and inner side of the upper to give a better reenforcement.

Another object of this invention is to provide a shoe having the strength, shape, and appearance of a vulcanized rubber and the comfort, and porosity of sponge rubber.

Other objects of this 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 side elevation of the improved shoe with parts broken away to show the internal construction.

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

Figure 3 is a top plan view of the shoe shown in Figure 1 with the reenforced parts shown in dotted outline.

Figure 4 is a detail cross section of a portion of a modified form of shoe.

Figure 5 is a side elevation of a still further modified form of shoe, with parts broken away to show the inner detail.

Figure 6 is a vertical cross section of the shoe shown in Figure 5 and substantially on the line 6—6 thereof.

Figure 7 is a top plan view of the shoe shown in Figure 5 with parts broken away to show the internal construction.

The present shoe 10 is formed of an upper 10*a* of sponge rubber material which is cellular and substantially porous in transverse section. Such a shoe is very soft, comfortable on the foot because of the porosity of the sponge rubber, and prevents perspiration and drawing of the foot which would normally occur in the ordinary rubber shoe.

In order to improve the walking quality of the shoe and to retain its appearance, I have provided a crepe rubber sole 12 which engages the bottom and sides of the sponge rubber side walls 10*a* of the shoe 10. As shown in Figure 2, the crepe rubber 12 is preferably of such width as to extend across the bottom of the shoe and up the sides of the side walls 10*a* and the angular part of the crepe rubber 14 thus reenforces the side walls as well as insures a good connection between the crepe rubber sole 12 and the sponge rubber side walls 10*a*.

The crepe rubber is frequently very flexible and it is desirable to provide a cork insole 16 which cooperates with the side walls 10*a* and the inner side of the crepe rubber sole 12 to form a stiffening but comfortable lining. Gussets 18 of crepe or vulcanized rubber are preferably fitted along the corner seam between the cork sole inner-liner 16 and the interior of the side walls 10*a* throughout their entire length and act as reenforcing elements along the corner seam of the sole as they are preferably cemented to the cork sole and to the side walls 10*a*. The side walls are thus kept

in shape in a much more satisfactory manner and do not tear out at the seam.

If desired reenforcing elements 20, of crepe or vulcanized rubber, may be provided along the tip of the shoe on the inside and connect at the top 10*b* of the instep portion with cross reenforcing strips 22 which latter strips extend along the edge of the opening through which the foot is projected. These latter strips 22 form with the reenforcing strips 20 of the T shape reenforcing element of the entire front of the shoe.

The reenforcing strips 20 and 22 are cemented or otherwise secured to the sponge rubber forming the upper and the strips are also cemented to the sole to which they extend. The corner gusset 18 also is cemented to the strips as well as the sole and thus the strips act as a skeleton reenforcement of the shoe. Furthermore, as the strips are of crepe or vulcanized rubber, they are flexible and elastic but not as expansible as the sponge rubber. They tend to hold their shape and also tend to prevent bulging or tearing of the sponge rubber when the foot is inserted in the shoe.

Such a shoe is extremely soft, flexible and comfortable on the foot. The sponge rubber is porous permitting ample ventilation of the shoe and yet due to the cork inner-liner and the crepe rubber sole the shoe substantially affords a good walking surface. The sole does not become deformed as it is substantially incompressible but is nevertheless equally soft and comfortable on the foot. The inner-soles are shaped to the foot and extend along the entire inner surface of the shoe and fit within the space between the sides 10*a* of the shoe 10. Inasmuch as the crepe rubber sole 12 extends upward along the sides 12 and as the gussets 18 also extend upward the shoe is completely reenforced and sides cannot be torn away from the sole portion. The shoe is thus of considerable strength due to its reenforcement. The strips 20 and 22 aid in accomplishing this result. If desired, an additional strip of crepe or vulcanized rubber may be incorporated on the upper edge of the opening in the upper as is shown at 49 in Figures 5 and 6 and this additionally reenforces the shoe and causes it to cling to the foot.

A slightly modified form of embodiment of the shoe is shown in Figure 4. The side wall 10*a* of the upper is adapted to be secured by cementing or otherwise to a sole 32 of crepe or of vulcanized rubber which has an upwardly extending portion 32*a* along the edge of the sole 32. The crepe rubber sole then has an integral internally extending portion 32*b* substantially parallel with the sole 32 and extending over the cork inner-liner 16. Co-extensive with the internally extending portion 32*b* of the crepe rubber sole is a further upwardly extending portion 32*c* which co-operates with the inside of the side walls 10*a* to which the crepe or vulcanized rubber is cemented. There are several advantages to such a construction among which are a greatly increased cementing or contact area, both along the reversely extending portion 32*b* and along the area between the upstanding portion 32*c* and the side wall 10*a*. Furthermore, the shoe has a better appearance, the joint appearing as a welt as in the usual common type of shoe and therefore has less the appearance of the rubber type of shoe. It is to be noted that the crepe rubber 32 being in most cases extremely thin is unsatisfactory as an entire sole, making the use of the cork liner 16 of great importance to increase the comfort of the shoe in walking. The inner-liner 16 however, may be of cork, rubber, imitation felt, linoleum or other suitable, preferably waterproof, substances and may have a cloth or other smooth foot contacting liner. The sole may preferably be of crepe rubber or vulcanized rubber which is soft and substantially non-expansible. The bottom may be moulded or otherwise formed in an irregular and rough surface to prevent slipping.

A still further modified form of shoe is shown in Figures 5, 6, and 7. The shoe 40 is provided with a shaped sponge rubber upper 41 on a vulcanized rubber sole 42, the sole 42 having an extension 43 to reenforce the toe portion of the upper 41. A heel 44 may be integral with the sole or separately attached thereto, and as shown in Figure 5 an extension 45 of vulcanized rubber extends from the rearward edge of the heel up the heel portion 46 of the upper across the top of the upper and down again along the inside 47 of the heel portion of the upper, and finally is anchored under the inner-liner 48. The inner-liner 48 is preferably of cloth, or cork and extends throughout the inner bottom portion of the shoe forming a continuous gusset 48*a* along the side walls, the toe portion and the heel portion of the upper. This inner-liner 48 which might be made of rubberized cloth or suitable other material which is substantially incompressible and yet substantially flexible is thus adapted to form the foot contacting portion of the sole and will additionally reenforce the contact between the walls 46 of the sponge rubber upper 41 and the sole 42.

From an inspection of Figure 6, it will be noted that the sole 42 is provided with integral extensions 42*a* which extend beyond the top of the sole 42 an amount sufficient to engage the side walls 46 of the sponge rubber upper through a portion of their length. This amount is sufficient to permit cementing of the side walls of the upper to the edge portion 42*b* and extensions 42*a* of the sole and as the upper is reenforced on the outside by these extensions and also reenforced on the inside by the inner-liner 48 which extends upward along the surface 48*a* to which the side walls 46 are also cemented but to a height slightly less than that of the extensions 42*a* on the outside the shoe will be extremely rigid and will retain its shape. A reenforcing band 49 surrounds the edge of the opening in the upper and this band 49 may be preferably made of crepe or vulcanized rubber, or other material which is less expansible than sponge rubber and adapted to hold the foot firmly within the shoe.

An additional band 50 is not only ornamental, but is also desirable from the standpoint of strengthening the front part of the shoe, although this may be omitted.

The shoe shown in Figures 5, 6, and 7 is thus reenforced at the points of greatest stress. In inserting the foot it is natural to pull the shoe on through the heel portion and with the use of the straps 45 and 47 which is integral with the sole on the outside, and which is anchored under the inner sole on the inside, the shoe may be very effectively drawn onto the foot. The straps 45—47 also cover the seamed portion of the sponge rubber upper 40, which seam is located at the back of the shoe and thus reenforces this seam. When the foot is in the shoe the reenforced toe portion 43 which is artistically cut and shaped and the vulcanized sole extensions 42*a* prevent the forcing of the foot through the front of the sponge rubber and the band 50 aids to maintain the shape of the shoe and to more effectively secure it to the

foot. The band 49 around the opening also engages the foot and thus aids in retaining the shoe on the foot.

In all of the constructions shown, the skin is preferably removed from the sponge rubber sections both on the exterior and interior. This provides ample porosity and prevents the foot from perspiring and becoming uncomfortable and hot. The sponge rubber that is used is particularly porous, not only permitting the air to pass through it but also facilitating cleaning when such is desired. The sole inner-liner is preferably smooth surfaced to permit the foot to slide therein with the minimum of friction.

It is obvious that the inner-lining may be made of cloth fabric, gum rubber, light leather, or other material which is pliable, although a cork compound filler with a fabric cover is found most satisfactory. Sponge rubber is used as far as possible for the purpose of reducing the weight, increasing the porosity and enhancing the beauty of the shoe. The crepe rubber, or vulcanized rubber for the sole and heel, and for such decorations in the nature of toe and instep reenforcement are preferably used, because they hold their shape better and form a stiffer and more satisfactory walking contact. The sole is shaped to the foot making a more stylish and more comfortable shoe. The flange is integral with the sole to increase the reenforcing strength between the sole and upper, and to prevent accidental tearing of the material.

While I have disclosed preferred forms of embodiment of my invention I am aware that many modifications may be made therein and I therefore desire a broad interpretation of this invention commensurate with the disclosures herein and the claims appended hereinafter.

I claim:

1. An article of the class described having a vulcanized rubber sole, a porous sponge rubber upper, upstanding integral reenforcing extensions extending above the lower edge of said upper and cooperating with said upper, said upper being cemented along the sides of said extensions, and a T shaped reenforcing element within the forward part of said shoe.

2. As an article of the class described a shoe for bathing or house wear, having a porous upper portion substantially unaffected by moisture and a waterproof sole portion having a flexible insole therein and reenforcing means, said reenforcing means including a T shaped non-sponge rubber reenforcement in the forward part of said shoe and an angular shaped gusset extending along the seam between said insole and the inner side of the side walls of said upper.

3. As a new article of manufacture, a rubber bathing shoe comprising a one-piece ventilating porous upper portion substantially unaffected by moisture, and a non-porous sole portion to facilitate walking, said upper being cemented on the bottom edge and along the side to said sole, and a plurality of reenforcing strips at the opening in said upper and in the body portion of said upper whereby the shape of said upper is maintained.

4. As an article of the class described a bathing or house shoe having a rubber outsole, a composition cork inner sole, and a sponge rubber upper, said rubber outsole extending around the edge of said cork inner sole and under and alongside of the upper wall of said shoe, means to cement said upper to said sole along the bottom edge and one side of said upper, whereby said junction has the appearance of a welt.

5. An article of manufacture of the class described, a shoe for beach and house wear, having a resilient porous sponge rubber upper and a non-sponge rubber substantially stiff sole, a reenforcing strip along said sole and said upper, means to secure said strip to said sole and said upper, and a rim surrounding the foot receiving opening in said upper, said rim being of a less resilient material than said sponge rubber and tending to prevent spreading of said upper near the open end thereof.

6. An article of the class described, a shoe for bathing or house wear having a vulcanized crepe rubber sole, an insole and a porous, shaped, sponge rubber upper, a portion of the sole projecting beyond the insole forming upstanding integral reenforcing extensions and secured to said upper, a reenforcing rim contacting with the edges of the foot receiving opening in said upper, said rim being composed of a less resilient material than sponge rubber, a reenforcing element for reenforcing the instep portion of the upper, said reenforcement being composed of rubber less resilient than sponge rubber and means to reenforce the joint between the insole and the upper.

7. An article of the class described, a shoe for bathing or house wear having a vulcanized crepe rubber sole, an insole and a porous, shaped, sponge rubber upper, a portion of the sole projecting beyond the insole forming upstanding integral reenforcing extensions and secured to said upper, a reenforcing rim contacting with the edges of the foot receiving opening in said upper, said rim being composed of a less resilient material than sponge rubber, a reenforcing element for reenforcing the instep portion of the upper, said reenforcement being composed of rubber less resilient than sponge rubber, and means to reenforce the joint between the insole and the upper, the projection of the crepe rubber sole being secured to and reformed on the insole, and secured to the inner side and bottom edge of the upper to coact as the interior reenforcement of the joint between the insole and the upper and to give the appearance of a welt.

8. An article of the class described, a bathing shoe having a porous, artificial sponge rubber upper, a vulcanized rubber sole having a heel thereon, and a reenforced toe portion integral with said sole, and means extending above the sides of said sole contacting with said upper and to which said upper is secured, and a one-piece reenforced rubber strap portion integral with said heel extending over and around the heel portion of said upper and having less resilience than the upper.

9. As an article of manufacture a shoe having a vulcanized rubber sole and heel portion, a sponge rubber upper portion secured to the sole and heel portion, reenforcing means of vulcanized rubber extending around the edges of the sponge rubber upper where it is secured to the sole and heel portion and reenforcing means of vulcanized rubber extending around the top of the sponge rubber upper.

10. As an article of manufacture a shoe having a vulcanized rubber sole and heel portion, a sponge rubber upper portion secured to the sole and heel portion, reenforcing means of vulcanized rubber extending around the edges of the sponge rubber upper where it is secured to the sole and heel portion, reenforcing means of vulcanized rubber extending around the top of the sponge rubber upper, and reenforcing means extending between

said first reenforcing means and said second reenforcing means and secured thereto.

11. As an article of manufacture, a bathing shoe comprising a sole portion of vulcanized rubber, an upper portion of sponge rubber, means to secure the sponge rubber upper to the rubber sole including a reenforcing rim of vulcanized rubber extending upwardly around the sole, and means to reenforce the top of the sponge rubber upper portion including a section of elastic rubber whereby the top portion may be stretched without tearing the sponge rubber upper.

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