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CUSHION PLATFORM TYPE SHOE CONSTRUCTION

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Fig. 1.

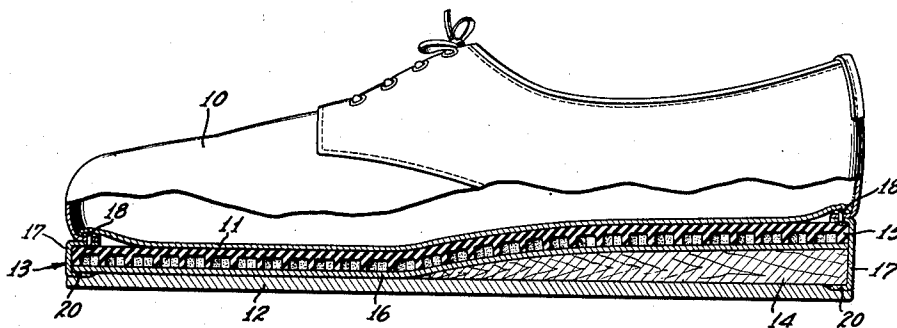


Fig. 2.

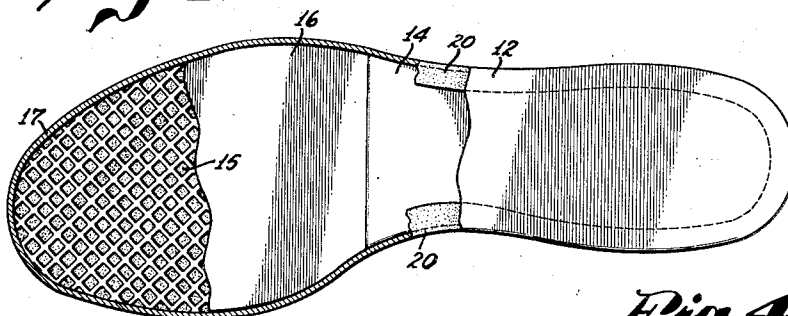


Fig. 4.

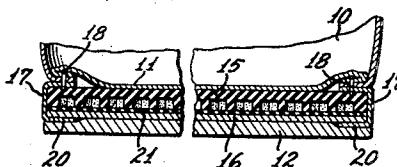
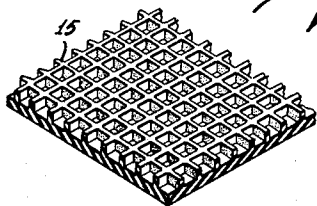


Fig. 3.



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CUSHION PLATFORM TYPE SHOE
CONSTRUCTION

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2 Claims. (Cl. 36—19.5)

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This invention relates to shoe construction and in particular to a cushion platform type which incorporates a resilient cushioning element between the upper and the outsole, such element being enclosed by an edge covering of sheet material which extends entirely around the platform.

Various materials have heretofore been employed for the cushioning element, as for example felt, sisal, cork, and other compositions. So far as I am aware no one has ever utilized a waffle surface sponge rubber for the purpose. Such a material offers lightness, buoyancy, 100% return to original shape, and general lasting qualities superior to other materials. In endeavoring to adapt this material as a cushioning element in a shoe several problems were encountered the solution of which gave rise to the present invention.

For example, it was found that the best general results were obtained when using a sponge rubber having a flat plain surface on one side and a waffle surface on the other side to place the waffle surface down and the flat, smooth surface up against the insole. Doing this, however, left only the edge of the waffle surface upon which to attach the intumed part of the edge covering and such a relationship was found insufficient. It was then discovered that by mounting the waffle surface of the sponge rubber upon a co-extensive sheet of chipboard or generally equivalent material an adequate base would be provided against which to cement the in-turned edge of the cover. Other problems were encountered and solutions reached which will be discussed hereinafter.

The general object of the present invention is therefore to provide in a shoe construction a cushioning platform characterized by a relatively thick sheet of sponge rubber, preferably having one surface of waffle design, and associated parts enabling the use of such sponge rubber material in a sturdy construction.

Other objects and advantages will become apparent as the description progresses.

In the drawings:

Figure 1 is a side elevation partly in section of a shoe embodying the invention.

Figure 2 is a bottom plan view partly in section of the same shoe.

Figure 3 is a fragmentary perspective view of the sponge rubber material employed.

Figure 4 is a vertical broken section illustrating a form of the novel shoe construction in a flat platform shoe without a heel lift.

The shoe illustrated in Figure 1 comprises an

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upper 10, a sock lining type of insole 11, an outsole 12, and a cushion platform 13 which includes a heel wedge 14, a sponge rubber cushioning pad 15, a mounting 16 for the pad, and an edge cover 17 extending entirely around the combined heel wedge or lift, cushioning pad and mounting.

The particular shoe construction illustrated is the slip lasted type wherein the upper, the sock lining insole, and the edge cover are stitched together by means of stitching 18, the upper is then placed on a last, the pad with mounting and heel lift are spotted to the insole, the edge covering 17 is pulled around and the marginal edges turned in and cemented to the lower surface of the mounting and heel lift respectively and thereafter a relatively flat outsole is cemented on.

With such a construction the cushion pad with mounting and heel lift are preferably formed as an uncovered unit and placed in the pocket formed by the edge cover 17. If another type of construction is employed wherein the upper and insole are assembled separately from the edge cover for the platform the cushioning pad mounting and heel lift may be separately assembled and covered independently by the edge covering 17.

The present invention is adaptable to either type of construction and for purposes of illustration, but not by way of limitation, will be described in connection with the first type of construction. It will therefore be assumed that the upper 10, the sock lining insole 11, and the platform cover 17 are assembled by stitching at 18 as described.

The cushioning pad 15 is next attached to the mounting 16. This cushioning pad is preferably made of chemically blown natural rubber and is commonly known as sponge rubber. Synthetic rubber or other similar material may be substituted. It is cured in sheet form with one surface being flat and smooth and the opposite surface having a waffle design, being cellular in configuration, formed by vertical walls extending transversely and intersecting and the edges of such walls all lying in the same plane. Such a material provides not only minute cells in the structure itself but offers relatively large air pockets open at the surface. The sheet material is 100% returnable after stretching or compression or other deformation, offers substantial buoyancy and is readily cut into the desired sizes and shapes for shoe manufacture.

It is preferable that the smooth surface be employed against the insole or sock lining as more comfortable contact with the foot of the wearer is thus achieved. The opposite open cel-

lular surface is not satisfactory for attachment of the intumed lower edge of the cover 17 and because of this and further in order to more evenly distribute pressure placed upon the pad a relatively thin sheet of chipboard, buckram, thin felt, or other equivalent sheet material shaped to lie coextensive with the cushion pad is adhered to the latter. To accomplish this it is preferable to coat the entire surface of the chipboard with a latex type cement which may be sprayed or brushed on or otherwise applied, the formed cushion pad is placed against the cement and the two parts are pressed together.

It is desirable, although not essential, that a sufficient quantity of the latex cement be sprayed upon the surface of the chipboard mounting so that when dry it not only serves as an adhesive bond between the sponge rubber and the chipboard but forms a thin rubber-like film over the entire surface of the chipboard, thereby strengthening the same and assisting in integrating the rubber cushion and its mounting whereby pressure or distortion in any direction tends to be distributed throughout the entire assembly of cushion and mounting. Such a film is shown in Figure 4 at 21.

This assembly may be employed with or without a heel lift. Without a heel lift the only difference would be that the edge cover would be turned under the pad mounting all the way around, as shown in Figure 4. I have shown in Figure 1 and referred to a heel lift 14 which may be cemented against the lower surface of the mounting over the area indicated. This heel lift may be made of wood, cork, or any suitable material and may be either of a cushioning type or non-cushioning. It is not necessary that it have any resiliency as the necessary cushioning is provided by the overlying rubber pad.

Assembling the platform elements, preferably combined as a unit as described, with the upper is accomplished by spraying or otherwise coating the lower surface of the insole and the upper plain surface of the rubber with a cement and spotting the rubber on the lower surface of the sock lining or insole. The lower edges 20 of the platform cover 17 are then brought over and cemented to the lower surface of the mounting 16 and the lower surface of the heel lift. Thereafter the outsole 12 is cemented to the lower surface of the heel lift, the mounting and the exposed in-turned edges 20 of the cover. The assembled shoe may then be pressed by any suitable means.

Some of the advantages of the invention would even be realized by forming the rubber pad and mounting only to cover the toe portion of the shoe and joining such unit at the waist with a heel lift. Another alternative would be to use a full size pad lying flat and place the heel lift over the pad. These modifications would be equivalent to the broader conception of the invention, although sacrificing some of the obvious advantages. The rubber employed may even be rough or open celled on both surfaces, within the spirit of the invention.

While the outsole 12 is illustrated as flat, the shoe may be formed with an arch effect, as by cutting out a portion of the lower surface of the heel lift or by actually forming a heel type shoe so long as the arch thereof is supported below the cushion pad. Moreover, the invention is not limited to the use of a sponge rubber pad with the smooth surface uppermost, even though this is preferable, for the material could be inverted

and although the full advantages of the invention would not be realized some of them could, particularly if an insole is employed which has sufficient inherent firmness to conceal from the wearer the feeling of the open rubber cellular structure. Even the mounting 16 might be eliminated in whole or in part. For example, if the heel lift is employed, as illustrated, the mounting 16 need only extend rearwardly to the juncture with the heel lift inasmuch as the heel lift itself can furnish the needed contact area and support for the rubber pad over its upper surface. If the mounting 16 is entirely eliminated it will be difficult to adequately secure the platform cover to the lower surface thereof because in the first place the edges of the rubber pad will tend to pinch and in the second place the marginal area alone will not furnish adequate contact area to which the cover will sufficiently adhere. It would be within the spirit of the general principles of the invention, however, to employ a flat piece of material similar to that used for the mounting around the marginal area of the pad so as to afford the desired contact area for the turned-in portion of the cover.

The preferred form of the shoe comprehends a substantially flat outsole type in which the rubber cushion pad, the mounting therefor and the outsole are co-extensive, and the heel lift is interposed between the outsole and the mounting.

While I have herein shown and described my invention in what I have conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of my invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent structures.

In the claims the use of the term "insole" is intended to be equivalent to that of a sock lining type of insole. The phrase "sponge rubber" is intended to include chemically blown natural rubber or synthetic rubber, or any substitute material having resiliency and elasticity generally similar to that of chemically blown natural rubber, bearing in mind the purposes and the functions it is required to perform in the present shoe construction.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shoe construction of platform type comprising an upper attached to an insole, an outsole, and a platform intermediate the insole and outsole, said insole, outsole and platform being substantially co-extensive in outline with their edges substantially vertically co-inciding, said platform comprising a cushioning pad co-extensive with the insole formed of sponge rubber with a smooth unbroken surface in contact with the insole, and an open cellular surface on the lower side, said cellular surface including vertical walls extending in transverse directions and intersecting, the edges of said walls all lying in a plane parallel to the plane of the smooth surface, a relatively thin imperforate substantially non-elastic but flexible mounting sheet co-extensive with the outline of said pad and adhesively secured to the edges only of said walls and providing an unbroken attaching surface for an edge covering, the adhesive coating the entire surface of said mounting and forming a flexible film thereover which strengthens said mounting, and an edge covering extending around the pad

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and mounting and turned in and secured to the lower marginal surface of said mounting.

2. A shoe construction of platform type comprising: an upper attached to an insole, a substantially flat outsole and a platform intermediate the insole and outsole, said insole, outsole and platform being substantially co-extensive in outline with their edges substantially vertically co-inciding, said platform comprising a heel wedge, a cushioning pad substantially co-extensive in outline with the insole and arranged in vertical juxtaposition with the heel wedge, said pad being formed of sponge rubber with an upper smooth unbroken surface and a lower open cellular surface, said cellular surface including vertical walls extending in transverse directions and intersecting, the edges of said walls all lying in a plane parallel to the plane of the smooth surface, a relatively thin imperforate substantially non-elastic but flexible mounting sheet co-extensive with the outline of said pad at least around the toe region of said pad and adhesively secured to the edges only of said walls and providing an unbroken attaching surface for an edge covering, the adhesive coating the entire surface of said

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mounting and forming a flexible film thereover which strengthens said mounting, and an edge covering extending entirely around said platform and turned in and secured to the lower marginal surface of said platform.

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