This invention relates to shoes and, more particularly, is concerned with a midsole or platform sole for a shoe structure. As used herein, the term "midsole" denotes a sole generally placed between the insole and the outsole of a shoe, or a sole used in a shoe structure in which a true insole is omitted, such as the so-called California slip last type, in which a layer of fabric, for example, may be substituted for the insole.

Reinforced, flexible materials are particularly desirable for use as midsoles in shoe structures. However, in the manufacture of shoes, such as the platform type or any shoe including a midsole of a flexible, resilient material, difficulties are frequently encountered in the assembling operations. It has been found that a flexible, resilient material, when used as a midsole, tends to round about its periphery, thus presenting an objectionable appearance, for a gap exists between the upper and the midsole and, in many cases, between the outsole and the midsole. In shoes of the platform type, for example, generally an ornamental binder of fabric, leather, or artificial leather is disposed about the edge portion of the midsole in order to enhance the appearance of the shoe. In the assembling operations, frequently, the edge portion of the midsole is compressed, thus bulging outwardly the peripheral edge of the midsole and wrinkling the ornamental fabric. These disadvantages of construction are inherent in the manufacture of shoes including midsoles of resilient, flexible material.

The chief object of this invention is to provide a shoe structure in which the disadvantages discussed above are eliminated. An object of my invention is to provide a shoe structure including a resilient, flexible midsole in which the edges of the upper, midsole, and outsole fit closely together, in which the midsole is not susceptible to objectionable rounding of the edge portion; and in which the fabric covering the edge portion of the midsole is not susceptible to wrinkling during assembling operations. A further object is to provide a shoe structure including a resilient, flexible midsole having a flexible, relatively incompressible reinforcement member disposed about its periphery which serves to strengthen and reinforce the same, thus preventing gaps between the elements of the finished shoe, objectionable rounding of the midsole, and wrinkling of the decorative material during assembling operations. A still further object is to provide a midsole having a flexible, relatively incompressible reinforcement member disposed about the periphery of at least the forepart of the midsole.

This invention relates to a shoe having an upper and an outsole, and including a resilient, flexible midsole, a flexible, relatively incompressible reinforcement layer disposed along the peripheral portion of at least the forepart of the midsole, and a layer of decorative material disposed about the peripheral edge portion of said midsole, the reinforcement member serving to strengthen and reinforce the peripheral portion of the midsole without detracting substantially from the resiliency and flexibility thereof whereby wrinkling of the decorative material and objectionable rounding of the midsole forepart are obviated when the upper and outsole are assembled in the shoe.

This invention further relates to a resilient, flexible midsole having a flexible, relatively incompressible reinforcement layer disposed along the peripheral portion of at least the forepart thereof, said reinforcement layer serving to strengthen the edge portion of the midsole without detracting substantially from the resiliency and flexibility thereof whereby wrinkling of a binder and objectionable rounding of the midsole forepart are obviated when the midsole is assembled in a shoe.

The attached drawing illustrates a preferred embodiment of my invention, in which Figure 1 is an isometric view of a so-called cemented or compo shoe including the midsole of my invention; Figure 2 is a sectional view taken through the forepart of a midsole of my invention; Figure 3 is an exaggerated sectional view of the peripheral portion of the midsole serving to illustrate the reinforcement member; Figure 4 is an exaggerated sectional view, similar to Figure 3, serving to illustrate a modification of my invention; and Figure 5 is an isometric view of the midsole of my invention.

Referring to the drawing, there is shown in Figure 1 a shoe 2 of the so-called cemented or compo type. It will be appreciated, or course, my invention may be used in connection with the manufacture of any shoe which includes a resilient, compressible midsole or platform sole and is not limited to the various types of shoes illustrated herein. Shoe 2, as shown in Figure 1, comprises an upper 3, an outsole 4, an insole 5, and a midsole 6 disposed between the insole and the outsole. It is customary practice to cover the peripheral edge of the midsole 6 by a layer of decorative material 7 generally of contrasting color to the remaining portions of the shoe; such decorative material may be composed of fabric,
leather, or artificial leather. In constructing shoes of this general type, the upper is secured to the last, the insole and midsole placed in position thereon, the insole and upper suitably secured thereto. This type of construction is well known in the art and does not require lengthy description.

The forces necessary to adhere the outsole to the remaining elements of the shoe structure are so great in this type of construction that the peripheral portion of the midsole is compressed, causing objectionable rounding of the midsole at its peripheral edge, permitting gaps to appear between the elements of the shoe, and also permitting the fabric stretched over the edge of the midsole to wrinkle, detracting from the appearance of the finished structure. I have found that the midsole may be reinforced about its peripheral edge portion, thus obviating the objectionable rounding and wrinkling of the fabric and eliminating gaps between the elements of the shoe, created when the various elements of the shoe structure are assembled as a unit.

To eliminate these disadvantages, I provide a midsole having a flexible, relatively incompressible reinforcement member disposed about the peripheral portion of at least the forepart of the midsole and adhered in place on the midsole. The member extends inwardly only a short distance from the peripheral edge of the midsole in order to avoid loss of resiliency and flexibility of the midsole. The reinforcement member may be skived to a feather edge as shown in Figure 2 and positioned about the forepart of the midsole. In addition, the reinforcement member may be skived from its outer edge as shown at 10 in Figures 3 and 4 so as to incline inwardly and downwardly to meet the surface of the midsole, thus forming a feather edge at the point where the inner edge of the reinforcement member meets the surface of the midsole. For most satisfactory results, similar reinforcement members should be disposed along the upper and lower peripheral surfaces of at least the forepart of the midsole. If desired, member may extend about the entire peripheral surface of the midsole. The reinforcement member may be composed of any suitable material which is flexible and relatively incompressible in order that it will reinforce the peripheral portion of the midsole in a satisfactory manner without detracting substantially from the resiliency and flexibility of the midsole in use. Reinforcement member preferably is formed of a relatively incompressible flexible material, such as leather, artificial leather, saturated paper, or saturated fabric. Such member may be slashed in any desired manner to promote its flexibility. If desired, a coating of any suitable material may be used for this purpose, for example, semi-hard rubber, cellulose esters and ethers, or rubber urea-aldehyde resin mixtures containing a major portion of rubber.

The body of the midsole may be formed of any suitable flexible and resilient material; for example, it may be formed of cork and sponge rubber as disclosed in Forbes Patent No. 1,990,937 granted February 12, 1935, or it may be formed of a cured and vulcanized silicone oil-resin gel having incorporated therein a reinforcing pigment to toughen and strengthen the same, as disclosed in Elkins and Stouffer Patent No. 2,352,148, granted June 20, 1944.

Any suitable decorative material, such as fabric, leather, or artificial leather, may be disposed about the peripheral edge of the midsole as a binder as is customary in the manufacture of shoes of the type described above. The binder preferably conceals the reinforcement member and may be adhered to the midsole. Preferably, such binder possesses a contrasting color to the remainder of the shoe in order to enhance the appearance of the shoe.

In my invention, the midsole incorporating the platform sole of my invention, a platform or midsole member of suitable contour is strengthened by means of reinforcement members disposed along the periphery of at least the forepart thereof. A binder of decorative material, such as fabric, leather, or artificial leather, is then wrapped about the peripheral portion of midsole concealing members and is adhered in place. An insole is positioned on the last and is secured temporarily thereto by tacks. The upper is disposed over the insole, the edge portions of the upper being drawn about the insole, and the midsole of my invention is disposed over the insole; these elements are then secured together by stapling or cementing. A layer of adhesive is then spread over the outer surface of the midsole and the outsole adhered thereto. The structure so formed is then ready for further assembling operations.

My invention obviates wrinkling of the ornamental fabric and objectionable rounding of the midsole resulting from the assembling operations. By means of the reinforcement member, the appearance of the finished shoe structure is enhanced since the fabric binder is not wrinkled and the flexible and resilient midsole is not rounded at its edges but presents substantially angular contours. The reinforcing member stiffens the edge of the midsole without detracting substantially from its resiliency and flexibility. The provision of the midsole of my invention does not increase to any material extent the cost of manufacture of the shoe since additional operations are not required to assemble the midsole with the remaining shoe elements. The reinforcement member may then be disposed on the midsoles, if desired, at the place of manufacture of the midsole material. The shoe structure of my invention is economical, presents a better appearance, and may be manufactured at substantially the same cost as shoe structures heretofore known which are objectionable in appearance.

While I have described and illustrated a preferred embodiment of my invention, it will be understood my invention is not limited thereto since it may be otherwise embodied and practiced within the scope of the following claims:

* * * * *

I claim:

1. A platform sole for shoes comprising a readily compressible, resilient and flexible cushioning layer adapted to be disposed between the inner portion of the shoe and an outsole, a narrow substantially incompressible, flexible strengthening reinforcement disposed upon said layer along the peripheral portion of the forepart of the sole and lying substantially entirely above the plane of the upper surface thereof, said reinforcement rigidifying the periphery only of said layer to render such edge portion substantially incompressible in a direction along the plane of the upper surface of said layer without detracting substantially from its flexibility as a whole, and a binding of decorative sheet material disposed over
the peripheral edge portion of said layer and over said reinforcement.

2. A platform sole for shoes comprising a readily compressible, resilient and flexible cushioning layer adapted to be disposed between the inner portion of the shoe and an outsole, a narrow substantially incompressible, flexible strengthening reinforcement disposed upon said layer along the peripheral portion of the forepart of the sole and lying substantially entirely above the plane of the upper surface thereof, a similar reinforcement disposed upon said layer and lying substantially entirely below the plane of the lower surface thereof, said reinforcements rigidifying the periphery only of said layer to render such edge portion substantially incompressible in directions along the planes of the upper and lower surfaces of said layer without detracting substantially from its flexibility as a whole, and a binding of decorative sheet material disposed over the peripheral edge portion of said layer and over said reinforcements.

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