Aug. 14, 1934. P. B. SULLIVAN 1,970,254

TREAD MEMBER FOR SHOES

Filed Feb. 2, 1934

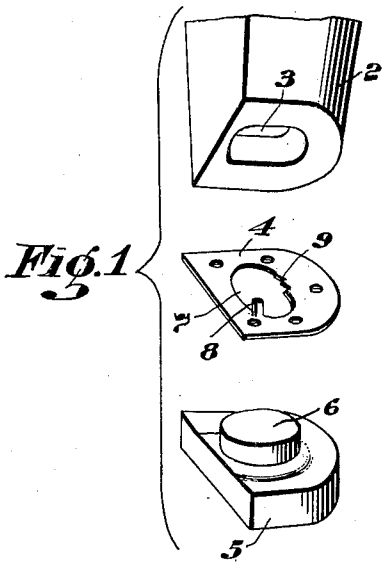


Fig. 1

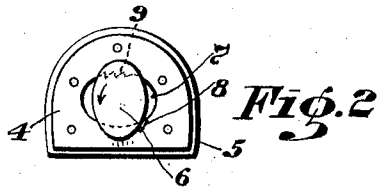


Fig. 2

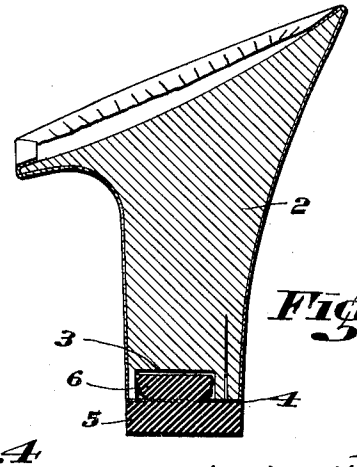


Fig. 3

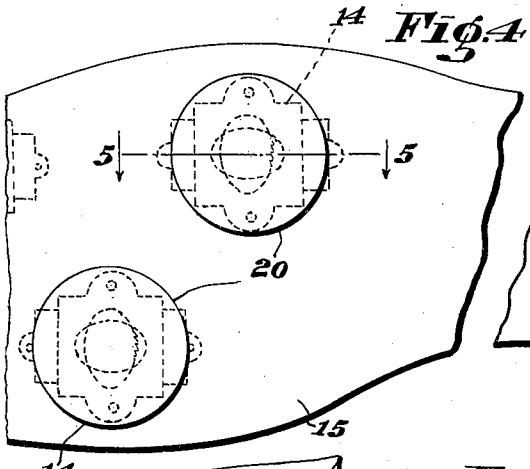


Fig. 4

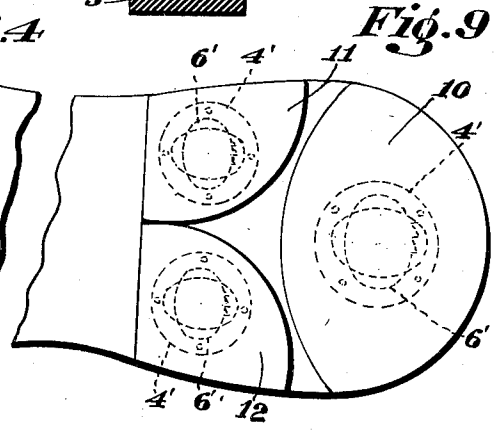


Fig. 9

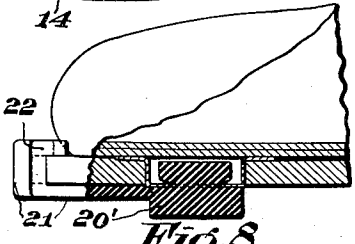


Fig. 8

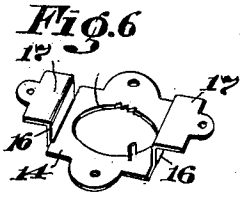


Fig. 6

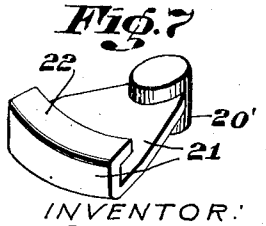


Fig. 7

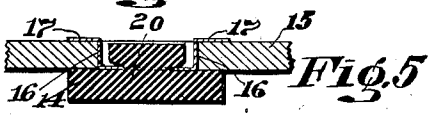


Fig. 5

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TREAD MEMBER FOR SHOES

Peter B. Sullivan, Randolph, Mass.

Application February 2, 1934, Serial No. 709,444

8 Claims. (Cl. 36—36)

This invention relates to the construction of the bottom members of boots and shoes, hereinafter referred to generically as shoes.

As is well known by those skilled in this art, it is a common practice to secure a leather or rubber top lift to the bottom of the heel of a shoe where it forms the tread member. Practically all of the wear of the heel comes on this tread element and since this wear usually occurs more rapidly at one margin than the other of the heel, it is desirable to renew these members before the wear has proceeded far enough to distort the upper of the shoe. This is particularly true in women's high heeled shoes. Much the same problem occurs also in the forepart of a shoe when it is desired to attach tread members of any kind to the outsole.

The present invention deals especially with these considerations, and it aims to devise a construction which will securely hold such tread members in their normal or operative positions, while at the same time facilitating the renewal of such members when occasion arises.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawing, and the novel features will be particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a perspective view of portions of a heel for a woman's shoe embodying features of this invention;

Fig. 2 is a plan view of certain of the parts illustrated in Fig. 1 but showing them removed from the heel;

Fig. 3 is a vertical, longitudinal, sectional view of a heel of the general construction illustrated in Fig. 1;

Fig. 4 is a bottom view of a shoe showing additional tread members removably secured in position by means embodying features of this invention;

Fig. 5 is a vertical, sectional view on approximately the line 5—5, Fig. 4;

Fig. 6 is a perspective view of one of the metal plates set into the forepart of the shoe shown in Fig. 4;

Fig. 7 is an angular view of another tread member embodying features of this invention;

Fig. 8 is a vertical, sectional view through a portion of a shoe equipped with the member illustrated in Fig. 7; and

Fig. 9 is a bottom view of the heel end of a shoe showing additional tread members secured thereto in substantially the manner illustrated in Figs. 1, 2 and 3.

Referring first to Figs. 1, 2 and 3, the construction there shown comprises a wood heel 2 which, as shown in Fig. 3, may be covered in the usual manner. Formed in the bottom or tread face of this heel is a cavity 3 which may, if desired, extend through to the breast surface of the heel in case the tread face of the heel is of very small dimensions, this, however, not usually being necessary. Secured to said bottom face is a metal plate 4 having suitable holes punched therethrough to receive the screws, nails, or other fastenings by means of which it is secured in place.

The top lift or tread element for this heel is shown at 5, and preferably consists of a rubber lift provided with an integral lug 6 extending upwardly from its upper surface. This lug should be of greater length than width and may conveniently be given the shape of an ellipse, as shown. Formed through the plate 4 is an aperture 7 of the same shape and dimensions as the horizontal outline of the lug 6, so that this lug can be inserted through the plate when it is brought thereto in such a relationship that its longitudinal axis registers with that of the aperture 7. After the lug has been pushed through the aperture, the entire tread member 5 with the lug 6 may be rotated in a clockwise direction, as indicated by the arrow in Fig. 2, until the side of the lug 6 brings up against a stop 8, Figs. 1 and 2, projecting upwardly from the plate 4 and formed integral with it. This prevents further rotation of the lug and tread member, but at this time the longer horizontal dimension of the lug extends at right angles to that of the aperture 7 so that its ends are projecting over the edges of the plate 4, these edges biting into the very short neck which connects the lug 6 with its supporting member 5. In fact, this neck may be made simply by cutting into the opposite ends of the lug at approximately its junction with the main body of the tread member. Consequently, when the parts are in this relationship, the tread member is secured firmly to the lower face of the heel 2 and in its operative relationship to said heel.

In order to lock the top lift or other tread member 5 against backward rotation, a series of teeth 9 are formed in the edge of the aperture 7 where they will bite into the side of the lug 6, these teeth being inclined in the direction of original rotation of the lug so that they exert a high degree of resistance against backward rotation, thus practically locking the lug against such backward rotative movement.

When the tread member has become worn and it is desired to renew it, sufficient force can be applied to the old member to back it up against the resistance of the teeth 9, it being then immaterial whether or not the teeth ruin the lug. When this rotative movement has proceeded far enough to bring the lug into register with the aperture 7, the member 5 may be removed by pulling the lug out of the aperture, after which this member may be replaced by a new one in the manner above described.

The invention thus provides a construction which will securely hold the top lift to the heel or other bottom member of the shoe but with which, nevertheless, renewal of the tread member can easily be effected when desired. By making the upper surface of the member 5 somewhat concave, as shown in Fig. 1, its edges can be made to hug the lower surface of the plate 4 closely so that a good fit of this member against the plate is obtained.

Essentially the same construction can be used in securing other tread members to the bottom of the shoe, at either the heel or forepart, as desired, and the character and the shapes of the tread members so fastened to the shoe can be varied widely. For example, Fig. 9 shows three such tread members indicated, respectively, at 10, 11 and 12, all secured to the heel base of a shoe by plates 4' and lugs 6' essentially like the plates 4 and the lugs 6 above described, except for the difference in dimensions and shapes, the plates being secured by nails, rivets, or other fastenings, to the bottom of the heel base. At the same time any one of these members 10, 11 or 12 can be removed or replaced with a new one whenever desired.

For some purposes, as for instance in attaching tread members to the outsole of a shoe, it may be preferable to replace the plate 4 with a plate construction such as that illustrated at 14 in Figs. 4, 5 and 6. This plate is located in an aperture cut through the outsole 15 to receive it, and it has a portion provided with an aperture 7' like the aperture 7 of the device shown in Figs. 1, 2 and 3. At opposite ends of the aperture the plate also is provided with shouldered portions 16—16 of approximately the thickness of the outsole, and the ends of the plate are turned over at the upper edges of these shoulders to provide flanges 17—17 which lie between the insole and outsole or between other layers of the shoe bottom, these flanges being perforated to receive rivets or other fasteners for securing the plates to the shoe bottom. An outsole with these plates located in it and riveted to it can be supplied to the trade as an article of manufacture. The tread members secured in these plates may be of circular form, as indicated at 20—20, Figs. 4 and 5, or they may be of any other desired shape, each of these members being provided with a lug like that shown at 6 in Fig. 1. These tread members thus can be renewed whenever desired. They are useful not only for the ordinary purposes for which such tread elements are applied to the outsoles of shoes, but, in addition, they can be made of such areas as to furnish substantially the entire tread or wear receiving surface of a shoe for children and others, such tread being renewable at a very small expense and without the necessity for the services of a cobbler.

At the toe portion of a shoe a special tread member of the form shown at 20' in Figs. 7 and 8 will often be found useful on children's shoes, this member having an extension 21 projecting laterally therefrom and provided with an upwardly extending flange preferably terminating in a lip 22, this flange and the lip being designed to fit over the edge face of the sole with the lip extending into the welt crease, or other corresponding portion of the shoe, both for the purpose of protecting the edge of the sole and also to reduce the strain on the upstanding lug caused by the scuffing of the feet. This device is releasably secured to the shoe by a plate construction like those shown in any of the preceding figures.

The invention thus provides a construction for securing tread members to any portion of a shoe bottom which holds these members securely in position, while at the same time facilitating the renewal of them by the wearer whenever desired.

While I have herein shown and described a preferred embodiment of my invention, it will be understood that the invention may be embodied in other forms without departing from the spirit or scope thereof.

For example, if the invention is to be applied to outsoles of the molded types, such as rubber and fiber soles, the plates 14 can be molded into the body of the outsole, the molds being so designed as to produce the cavities required to receive the lugs which are inserted through the apertures in these plates.

Having thus described my invention, what I desire to claim as new is:

1. A shoe bottom having a cavity extending thereinto from the bottom face thereof, a plate secured to a member of the shoe bottom and partly covering said cavity, a tread member having a lug rigid therewith and projecting from the upper face thereof, said plate having an aperture to admit said lug when the lug is presented in a predetermined positional relationship thereto, said lug and aperture being of such dimensions as to cause a relative turning movement of said lug and said plate, after the lug has been inserted through said aperture and positioned in said cavity, to lock said lug and said tread member to said shoe bottom and against withdrawal therefrom.

2. A construction according to preceding claim 1, including means for limiting the rotative movement of said lug into its locking relationship to said plate, and additional means for substantially preventing a backward rotation of the lug away from said locking position.

3. A construction according to preceding claim 1, in which said plate carries a stop serving to limit the rotation of said lug into its locking relationship to the plate, and is also provided with teeth to bite into said tread member and effectively resist backward rotation of said lug away from its locking position.

4. A construction according to preceding claim 1, in which said tread member is made of rubber and is provided with an extension projecting beyond the main body of the member and adapted to fit around and protect the exposed edge face of the shoe bottom.

5. A construction according to preceding claim 1, in which said tread member is made of rubber and said lug is integral therewith and is connected to the main body of said member by a short neck reduced in diameter, whereby said member will fit snugly against the bottom of said plate and the edges of said lug will overlie the edges of the aperture at the top of the plate.

6. A shoe bottom member having a cavity extending thereinto from the bottom face thereof, a plate secured to the shoe bottom and partly covering said cavity, a tread member having a lug rigid therewith and projecting from the upper face thereof, said plate having an aperture of greater length than width and said lug being correspondingly shaped to pass through said aperture when inserted therein with the longer dimension of the lug registering with that of the aperture, said lug having a neck of reduced diameter connecting the main body of the lug with the main body of said tread member, whereby the lug and member may be given a partial rotation after the lug has been inserted through said aperture and into said cavity to cause the edges of the plate at opposite sides of said aperture to enter said reduced neck and leave portions of said lug overlying said edges and thereby locking said member to the shoe bottom.

7. A construction according to preceding claim 1, in which the shoe bottom member consists of a shoe heel, said plate is secured to the lower face of said heel and has an outline conforming to that of said face, and said tread member is made of rubber and forms a top lift for said heel.

8. A construction according to preceding claim 1, in which the plate is made of metal and is shouldered at opposite ends of said aperture to extend through the shoe bottom and is provided with outwardly extended flanges above the apertured portion of the plate and offset with reference thereto to facilitate the anchoring of said plate between the layers of the shoe bottom.

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