March 20, 1956 B. F. PHILLIPS 2,738,599

SHOE HEEL CONSTRUCTION

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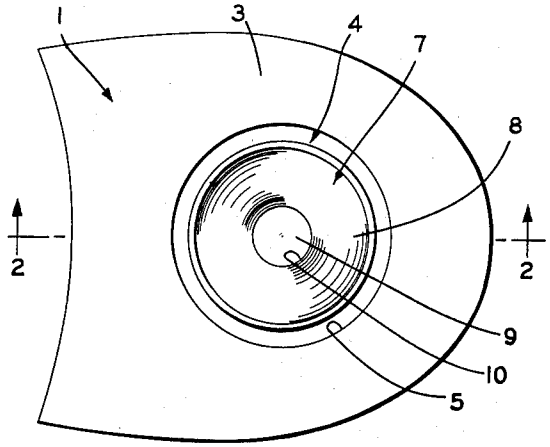



Fig. 1

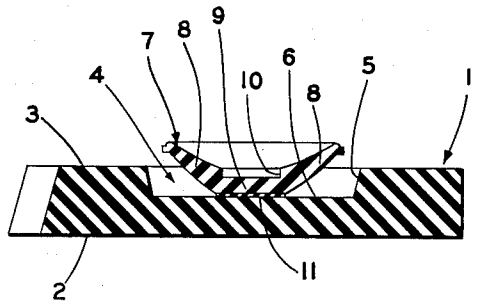



Fig. 2

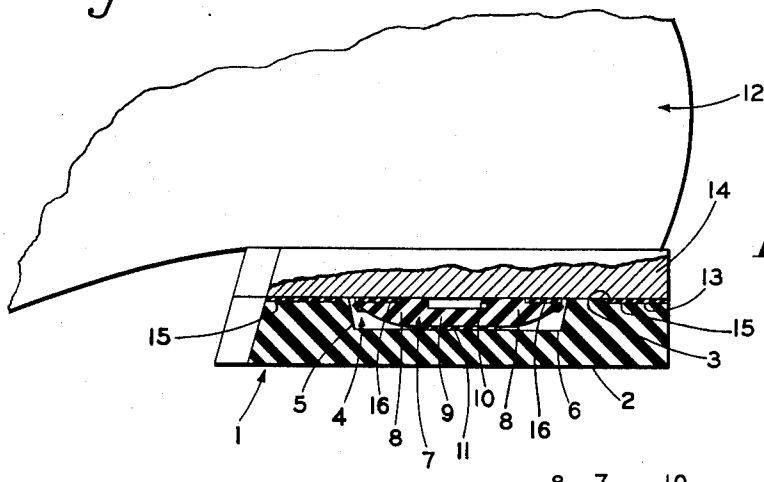



Fig. 3

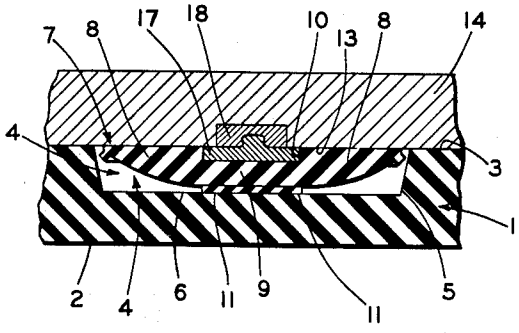



Fig. 4

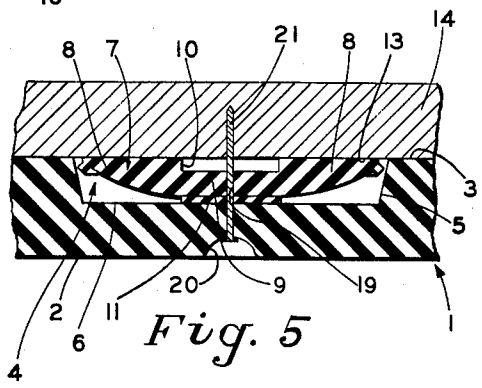



Fig. 5

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# SHOE HEEL CONSTRUCTION

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5 Claims. (Cl. 36—35)

My invention relates to improvements in shoe heel construction and more specifically to a new and unique means for fastening shoe heels to shoes.

Some prior constructions of shoe heels have included heels made from solid rubber. In this case, a plurality of holes are formed through the solid rubber heel, which holes have enlarged or countersunk portions at the tread or bottom side of the heel. Nails are placed in these holes and forced into the mounting surface on the heel portion of the shoe. When the nails are in place, the heads are positioned in the countersunk portions of the holes in the tread side of the heel so that the nail heads are not exposed.

One of the principal difficulties with this type of prior shoe heel construction is that it is necessary to place a shoe last or steel form inside the shoe in order to form a solid surface against which the nails are forced to mount or fasten the heel in place. Additionally, since the heads of the nails are countersunk within the tread portion of the heel, the holes are left open above these nail heads. Thus, when shoes containing such heels are worn on the streets or sidewalks, dirt and other filth is picked up in these holes and later carried into the home.

Another difficulty of this prior construction is that the nails used to fasten the heel on a shoe hold the heel rigidly against the shoe, thus, even though the heel is made from rubber or some other such resilient material, very little cushioning effect is obtained from it. Still another difficulty is that shoe heels are normally worn a greater amount on one side than on the other and, with this prior construction of heel, once the heel is worn on one side, it requires complete replacement since it is difficult to remove the heel without damaging it.

Another prior construction of shoe heels has used only rubber glue or cement to fasten the heel to the shoe. When glue alone is used, the heel fastening surface slips on the mounting surface on the shoe due to the forces exerted on it during walking. Thus, the shoe heel will not remain in proper mounting position.

It is therefore a general object of the present invention to provide a shoe heel construction which eliminates the difficulties of the prior art.

It is a primary object of the present invention to provide a shoe heel construction in which the heel may be easily and quickly installed without the need for special tools or special skill.

It is another object of the present invention to provide a shoe heel construction which does not have a plurality of nail holes on the tread surface to collect dirt and filth.

It is still another object of the present invention to provide a shoe heel construction which gives a cushioning effect and thereby aids in reducing wear.

It is a further object of the present invention to provide a shoe heel construction in which the heel may be quickly and easily removed and installed on another shoe without the need for special tools or special skills and without damaging the heel.

Finally, it is an object of the present invention to provide a shoe heel construction which accomplishes all of the above objects but yet is simple in construction and economical to manufacture.



These and other objects are accomplished by the parts, constructions, arrangements, combinations, and sub-combinations, comprising the present invention, the nature of which is set forth in the following general statement, preferred embodiments of which—illustrative of the best mode of which applicant has contemplated applying the principles—are set forth in the following description and illustrated in the accompanying drawings, and which are particularly and distinctly pointed out and set forth in the appended claims forming a part hereof.

In general terms, the improved shoe heel construction constituting the present invention may be stated as including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed therein, and a suction cup mounted in said recess.

More specifically, the improved shoe heel construction constituting the present invention may be stated as including a preferably rubber heel for a shoe, said shoe having a heel surface, said heel having a tread surface and a fastening surface, the fastening surface having a circular recess formed therein, a circular suction cup having side and bottom portions mounted in said recess, rubber glue on the mounting surface of the heel exterior of said recess, rubber glue on the side portions of the suction cup, and fastening means mounted partially on the bottom portion of the suction cup and partially on the heel surface of the shoe.

By way of example, embodiments of the shoe heel construction of the present invention are illustrated in the accompanying drawings forming a part hereof, wherein like numerals indicate similar parts throughout the several views and in which:

Fig. 1 is a top elevation of the shoe heel of the present invention;

Fig. 2, a sectional view looking in the direction of the arrows 2—2 in Fig. 1;

Fig. 3, a side fragmentary view, part in section and part in elevation, showing the heel mounted on the shoe;

Fig. 4, an enlarged fragmentary sectional view illustrating a second embodiment of the present invention; and

Fig. 5, a similar view to Fig. 4 illustrating a third embodiment of the present invention.

The shoe heel construction comprising the present invention is shown in Figs. 1 and 2 and includes a heel generally indicated at **1** having a tread surface **2** and a fastening surface **3**. The heel **1** is preferably made of rubber but could be made from other common shoe heel material such as leather or composition. It has the usual outside configuration of shoe heels and is of substantially the same overall thickness.

An annular recess generally indicated at **4** is formed in the fastening surface **3** spaced from all sides of the shoe heel **1** a shown in Fig. 1. The recess **4** has annular sides **5** and a bottom surface **6**.

A suction cup, generally indicated at **7**, is mounted substantially centrally in the recess **4**. The suction cup **7** is preferably made from rubber and has annular sides **8** and a bottom portion **9**. The bottom portion **9** preferably has a recess **10** formed therein.

The suction cup **7** is of the usual configuration having an annular outer edge with the sides **8** being formed thin at this annular outer edge and increasing in thickness toward the bottom portion **9**. The suction cup **7** is fastened to the bottom surface **6** of the recess **4** by preferably rubber cement as indicated at **11**, but may be fastened by any other usual fastening means.

Fig. 3 shows the heel construction mounted on a shoe generally indicated at **12**. The heel **1** is mounted so

that its fastening surface 3 abuts the shoe mounting surface 13 on the shoe heel portion 14. The suction cup 7 is flattened out against the mounting surface 13 so that the sides 8 abut this mounting surface 13 and the outer annular edge of the suction cup 7 is spaced from the sides 5 of the recess 4. Thus the suction cup 7 exerts a suction force on the shoe mounting surface 13 and retains the heel 1 in place preventing it from shifting parallel to the shoe mounting surface and also holding it tightly against this shoe mounting surface.

The shoe heel portion 14 of the shoe 12 is preferably made of leather but could be made of any usual shoe material, it only being necessary that the shoe mounting surface 13 be substantially flat so that a suction is created under the suction cup 7.

The heel 1 may be retained on the shoe heel portion 14 with merely the suction cup 7 constituting the retaining force. In some cases, however, it may be found desirable to increase this retaining force by applying rubber cement between the fastening surface 3 of the heel 1 and the mounting surface 13 of the shoe heel portion 14, as shown at 15 in Fig. 3. Additionally, it also may be found desirable to apply rubber cement to the top surface of the sides 8 of the suction cup 7 as indicated at 16. Rubber cement at either 15 or 16 or both serves to greatly increase the retaining force of the suction cup 7 and minimize the danger of the heel 1 becoming detached from the shoe 12.

The heel 1 may be easily removed from the shoe 12 at any time by placing the blade of a knife or other flat thin object between the fastening surface 3 of the heel 1 and the mounting surface 13 of the shoe heel portion 14. This will break the suction force between the suction cup 7 and the mounting surface 13 and detach the heel 1 from the shoe 12. This is true regardless of the application of rubber cement at 15 or 16 and can be done without damage to the heel 1 or the shoe 12.

The second embodiment of the present invention uses a similar construction of heel 1 and suction cup 7. The principal difference is that in this embodiment, the male half of a snap fastener is mounted in the recess 10 formed in the suction cup 7. The female half 18 of the snap fastener is mounted in the shoe heel portion 14 of the shoe 12 in direct alignment with and above the male half 17.

In this case, as the heel 1 is pressed against the shoe heel portion 14 of the shoe 12 and the suction cup 7 is flattened so that suction force is created between the suction cup 7 and the shoe mounting surface 13, the male half 17 of the snap fastener will engage in the female half 18 and the suction force of the suction cup 7 will be further strengthened by this snap fastener retaining force. The snap fastener is of any usual type preferably formed of metal.

The third embodiment of the present invention, shown in Fig. 5, also uses a similar shoe heel construction to that described in the first embodiment. In addition thereto, an annular opening or nail hole 19 is formed vertically through the heel 1 and centrally of the recess 4, the suction cup 7 and the recess 10. The opening 19 is formed so that it has a portion 20 of increased diameter at the tread surface 2 of the shoe heel 1.

After the shoe heel 1 has been placed against the shoe heel portion 14 of the shoe 12, the nail 21 is placed in the annular opening 19 so that it extends into the shoe heel portion 14 of the shoe 12, as shown in Fig. 5. The head of the nail 21 will be recessed in the larger portion 20 of the opening 19.

When this nail 21 is positioned in place, it will force the fastening surface 3 of the heel 1 against the mounting surface 13 on the shoe heel portion 14 and the suction cup 7 will be flattened out so that the sides 8 closely abut the fastening surface 13. This again gives a suction force between the suction cup 7 and the shoe fastening surface



13 with the nail 21 increasing and supplementing this retaining force.

In the constructions shown in both the second and third embodiments, that is, in the case where a snap fastener or a nail is used to supplement the retaining force of the suction cup, this retaining force may be further supplemented, as described in the first embodiment, by the use of rubber cement. As before described, the cement may be placed between the fastening surface 3 and mounting surface 13 as indicated at 15 in Fig. 3, or between the suction cup 7 and the mounting surface 13 as indicated at 16 in Fig. 3, or it may be placed at both positions. This again will increase the retaining force holding the heel to the shoe and minimize the danger of the heel 1 becomining detached from the shoe 12.

Thus the heel construction comprising the present invention provides a shoe heel that may be quickly and easily installed on a shoe without the need for special tools or skills. Additionally, the heel may be easily removed from a shoe without damage to the heel and thereafter reinstalled on another shoe, again without the need for special tools or special skills.

The first and second embodiments of the present invention provide a shoe heel construction that does not have nail holes on the tread surface to collect dirt or filth which dirt or filth could later be carried into the home. The third embodiment does contain one nail hole centrally located in the heel and although this one nail hole does constitute a condition for collection of dirt and filth, it still has greatly minimized the condition as compared to the normal shoe nail construction containing a multiplicity of nail holes. It thus provides a vast improvement over the normal shoe heel construction from this standpoint.

An additional feature of the shoe heel construction comprising the present invention is its cushioning effect since the recess 4 is formed centrally in the heel, the thickness of the center of the heel is decreased giving more flexibility and a greater cushioning effect. In addition, the fact that the edges of the shoe heel are not firmly held by nails around the periphery of the heel permits the heel to spread slightly taking advantage of the resiliency of a rubber heel and thereby increasing this cushioning effect.

Further, since the shoe heel is not firmly held around its outer periphery by nails as in prior constructions, the wear on this heel will be minimized. This results from the fact that advantage can be taken of the full resiliency of the heel allowing it to shift slightly with abrasive forces. For this reason, the heel is less likely to be cut or to take extreme wear at any particular point.

Finally, the shoe heel construction comprising the present invention is simple and economical to manufacture and since it does not require special skills or tools to install, the installation cost to the ultimate consumer is negligible.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example and the scope of the present invention is not limited to the exact details of construction shown.

Having now described the invention, the construction, operation and use of preferred embodiments thereof, and the advantageous, new and useful results obtained thereby, the new and useful construction and reasonable mechanical equivalents thereof obvious to those skilled in the art are set forth in the appended claims.

I claim:

1. Shoe heel construction for fastening on the mounting surface of the heel mounting portion of a shoe including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed there-

in, a suction cup mounted in said recess, and adhesive cement between the heel fastening surface and the shoe mounting surface.

2. Shoe heel construction for fastening on the mounting surface of the heel mounting portion of a shoe including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed therein, a suction cup having side and bottom portions mounted in said recess, adhesive cement between said heel fastening surface and the mounting surface of the shoe, and adhesive cement between said side portions of the suction cup and the mounting surface of the shoe.

3. Shoe heel construction for fastening on the mounting surface of the heel mounting portion of a shoe including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed therein, a suction cup having side and bottom portions mounted in said recess, adhesive fastening means between the heel fastening surface and the shoe mounting surface, and fastening means between at least one of said suction cup portions and the mounting surface of the shoe.

4. Shoe heel construction for fastening on the mounting surface of the heel mounting portion of a shoe including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed therein, a



suction cup having side and bottom portions mounted in said recess, said bottom portion of the suction cup having a recess formed therein, one portion of a snap fastener mounted in said recess in the suction cup bottom portion, and the other portion of a snap fastener mounted on said mounting surface of the shoe, adhesive cement between said heel fastening surface and the mounting surface of the shoe.

5. Shoe heel construction for fastening on the mounting surface of the heel mounting portion of a shoe including a shoe heel having a tread surface and a fastening surface, the fastening surface having a recess formed therein, a suction cup mounted in said recess, a single fastening nail mounted substantially centrally through the suction cup and partially received in the shoe mounting portion, and adhesive cement between the said fastening surface of the heel and the mounting surface of the shoe.

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