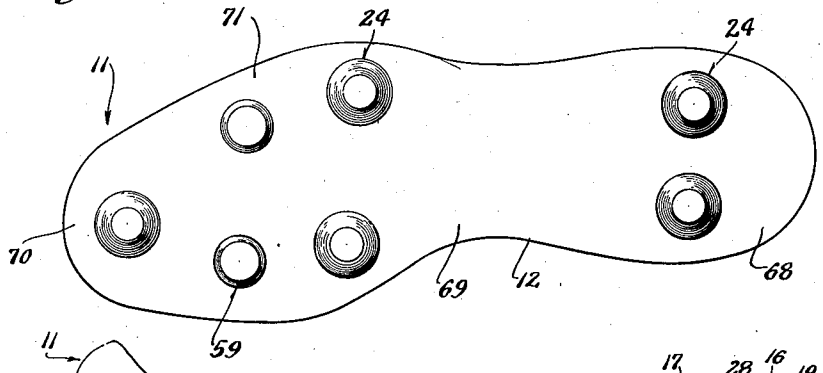
Aug. 4, 1942. H. M. PIERCE ET AL 2,292,238

SHOE AND CALK DEVICE THEREFOR

Filed Nov. 7, 1939

Fig. 1



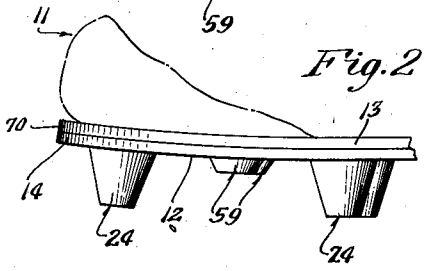


Fig. 2

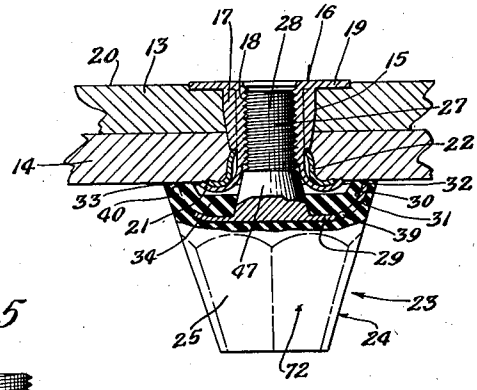


Fig. 3

Fig. 4

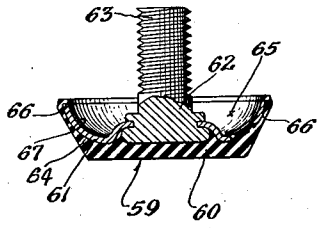
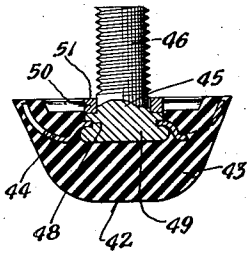


Fig. 5



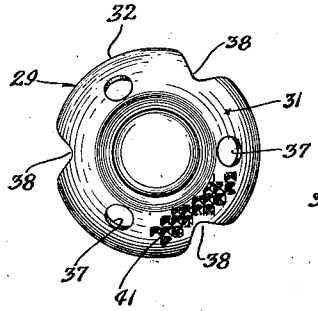


Fig. 6

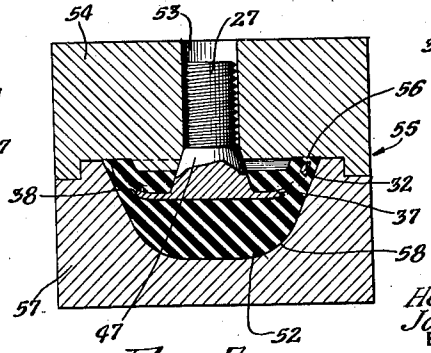


Fig. 7

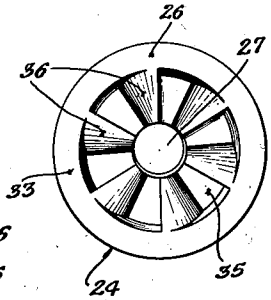


Fig. 8

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SHOE AND CALK DEVICE THEREFOR

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Application November 7, 1939, Serial No. 303,200

10 Claims. (Cl. 36—59)

This invention relates to shoes, particularly athletic shoes, and to calk devices adapted to be secured to the soles of shoes.

It is an object of the present invention to provide a calk device which is adapted to be held relative to the shoe sole in a most effective manner.

It is another object of the invention to provide a calk device including a molded main body and a metal insert which will present no exposed sharp metal edges even though the body of molded material is cut or substantially wears away.

It is a further object of the invention to provide a calk device which may not only be easily and economically produced, but which also is very sturdy in construction.

In attaining the above and other objects which will hereinafter appear, there is provided as a feature of the invention a calk device including a calk with a main body of molded material such as rubber or the like, having therein and adjacent its base, a reinforcing and holding insert which is designed to effectively maintain the base of the calk against adverse flexing or rocking and which is provided with a facing of rubber to provide in effect a friction washer intermediate the base of the calk and the shoe sole.

Another and related feature of the invention resides in the provision of a calk device having a substantially flat cup-shaped metal shell with a threaded stud extending from the concave side thereof and adapted to be secured in a shoe sole and with a facing of rubber or the like on at least the contact edges of the shell adapted to form a seal between the latter and the sole when the shell is secured thereto.

A further feature of the invention resides in the provision of a calk having a main body of molded material in which is located adjacent the base thereof, a reinforcing and holding member, and which has formed on its base a plurality of teeth adapted to cooperate with means on the sole to maintain the calk against adverse turning.

Another feature of the invention resides in the provision on the sole of a shoe of a plurality of calks of different height, said calks being adapted to be readily removed from and secured to the sole.

Yet another and related feature of the invention is the provision of a substantially flat calk having a recess in the base thereof adapted to receive and protect metal gripping fingers on the sole, and to seal the fastening means by which the calk is secured to the sole against foreign matter.

Another feature of the invention resides in the provision of a calk having a main body of moldable material from which extends a threaded stud, and in which and adjacent the base thereof is a dishlike reinforcing member provided with apertures through which portions of the moldable body material extend to effectively lock the body relative to the reinforcing member.

Other objects and features will hereinafter appear.

In the drawing:

Figure 1 is a bottom view of a shoe having secured thereto in a particular arrangement, calk devices embodying the present invention.

Fig. 2 is a fragmentary side view of the shoe shown in Fig. 1.

Fig. 3 is a sectional view showing one form of calk device provided by the present invention, in operative association with the shoe sole.

Fig. 4 is a sectional detail view illustrating a modified form of calk.

Fig. 5 is a view similar to Fig. 4, but showing another modified form of calk.

Fig. 6 is a view looking toward the convex side of the reinforcing member provided by the present invention.

Fig. 7 is a sectional view showing diagrammatically a preferred manner in which a calk provided by the present invention may be molded.

Fig. 8 is a view looking toward the base of the calk shown in Fig. 3.

Before describing the present improvements and mode of operation thereof in detail it should be understood that the invention is not limited to the details of construction and arrangement of parts shown in the accompanying drawing, which are merely illustrative of the present preferred embodiments, since the invention is capable of other embodiments, and the phraseology employed is for the purpose of description and not of limitation.

Referring more particularly to the drawing, there is shown a shoe 11 having a sole 12 which, as shown most clearly in Figs. 2 and 3, may be of conventional construction with an inner layer 13 and an outer layer 14 formed with a usual calk-device-receiving aperture 15 therein.

As shown in Fig. 3, there is inserted in the aperture 15 a particularly advantageous calk-securing device 16. This device includes a tubular member 17 having screw thread 18 formed internally thereof, terminating at one end in a

flange 19 adapted to overlie the upper side 20 of the sole and terminating at the other end in a plurality of radially extending, clinched gripping fingers 21 which, as shown, may be bent over a bushing 22 on the tubular member. This advantageous securing device is more completely illustrated and described in United States Patent No. 2,161,833.

To complete the assembly of the calk device 23 provided by the present invention, and referring to Fig. 3, there is provided a calk or cleat 24 which has a main body 25 of moldable material, such as rubber or the like, and which, as shown and as is conventional, may be generally frustoconical in shape. As is also conventional, the calk 24 which has a base 26 is provided with a stud 27 extending therefrom and formed with a threaded portion 28 adapted to be screwed into the tubular member 17 to secure the calk relative to the sole.

Of particular importance, however, there is provided by the present invention a novel reinforcing and holding member 29 in the form of a substantially cup-shaped shell. This member 29 which is formed with a concave inner side 30, a convex outer side 31 and a peripheral portion or contact edge 32, is located in the body 25 of the calk and adjacent the base 26 thereof and is connected to the stud 27 in such a way that the latter extends from the concave side thereof.

It is to be particularly noted that a portion 33 of the body material extends over the peripheral edge 32 of the shell and provides a facing intermediate the shell and the sole when the calk is secured in place. Attention is directed to the fact that a portion 34 of the molded body of the calk extends over the concave side 30 of the shell 29 to effectively secure the latter to the calk body. As shown most clearly in Figs. 3 and 8, the portion 34 of the calk body, which constitutes the base 26 thereof, is formed with a recess 35 so that the facing portion 33 over the peripheral or clamping edge 32 may be drawn into tight sealing engagement with the shoe sole. In this recess are provided a plurality of radially extending teeth or ribs 36 adapted to cooperate with the gripping fingers 21 in most effectively securing the calk against inadvertently unscrewing.

To most effectively secure the reinforcing member 29 or insert relative to the calk body, apertures are formed therein through which portions of the moldable material of the body extend.

As shown most clearly in Fig. 6, these apertures are in the form of circumferentially disposed holes 37 located intermediate the center and the peripheral edge of the shell, and are also in the form of slots 38 adjacent the peripheral edge of the shell. Preferably, these holes and these slots are in alternate circumferential relation in the shell. With this construction the portions 39 extending through the holes 37 and the portions 40 extending through the slots 38 provide in effect interconnecting pins between the body material on the inner and outer sides of the shell and most advantageously and effectively maintain the calk body against adverse turning movement relative to the reinforcing member. While not essential, grooves 41 as shown in Fig. 6 may be provided on the reinforcing member to increase the adhesion between the calk body and the reinforcing member and thereby even more effectively lock the calk body and the shell relative to each other.

When the calk 24, such as shown in Fig. 3, is secured to a sole the cup-shaped shell 29 serves to most effectively reinforce the calk body and to maintain it against adverse flexing or rocking motion, and the rubber faced peripheral or clamping and contact edge 32 of the shell maintains the calk in firm sealing and frictional engagement with the sole without any adverse cutting of the sole. Moreover, with the illustrated construction, even though the body 25 of the calk should become cut or worn so that the reinforcing member 29 is exposed, the outer side 30 of the shell presents a surface free of any sharp projections or edges which might cause serious injury to a person coming into contact therewith. This safety feature is of the utmost importance when the calks are associated with shoes worn in football, softball, soccer and other athletic games involving the likelihood of contact between the shoes of one player and the person of another player, and where the provision of a calk construction which minimizes the danger of personal injury is a very vital need.

While the calk 24 shown in Fig. 3 is designed particularly for use on football shoes it will be readily appreciated that the novel and advantageous features embodied in this calk may likewise be embodied in calks designed for use on other types of athletic shoes. Thus, for example, and as shown in Fig. 5, a modified calk 42 is disclosed which is particularly designed for use on softball shoes. Like the calk 24 first described it involves a main body 43 of moldable material such as rubber or the like with which is associated a reinforcing and holding member 44 in the form of a substantially cup-shaped shell to which is connected a stud 45 having a threaded portion 46 adapted to be secured in a shoe sole.

Essentially, this modified calk 42 differs from the calk 24 in the fact that it is somewhat shorter than the football calk and is rounded on the ground engaging end thereof. However, it is to be noted that whereas in the calk 24 the reinforcing member 29 and the stud 27 are of a one-piece integral construction with the threaded portion 28 of the stud connected to the concave side 30 of the shell by an enlarged and intermediate conical portion 47 on the stud, in the calk 42 shown in Fig. 5 the stud 45 and the reinforcing member 44 are separate members connected together in a groove 48 in a head 49 on the stud. Also, in the modified calk it is to be noted that instead of the enlarged conical portion 47 on the stud there is provided a separate ringlike or washer member 50 on the stud, providing a shoulder 51 on one side thereof.

This shoulder 51 and the enlarged conical portion 47, on the studs extending from the reinforcing members, are of particular use in connection with the molding of the calk bodies on the reinforcing members, serving to space the peripheral edges of the reinforcing shells from one side of the mold so that the moldable material may readily flow around the same. A preferred manner of molding the calk bodies is shown somewhat diagrammatically in Fig. 7.

Thus, when molding a calk, for example a calk 52 having the one-piece stud and reinforcing member construction shown in Fig. 3 and the exterior design of the calk 42 shown in Fig. 5, the stud 27 is inserted in an aperture 53 in one side 54 of the mold 55 with the enlarged conical portion providing a shoulder facing away from the shell and spacing the peripheral edge 32 of the shell from operating face 56 of the side 54

of the mold. Then when the side 57 of the mold 55 having the body design defining cavity 58 therein and the side 54 are moved relative to each other, the moldable material flows not only around the edge 32 but also through the holes 37 and slots 38 in the shell to effectively cover both the inside and outside of the shell and to lock the latter relative to the calk body.

In addition to the calks 24 and 42 illustrated in Figs. 3 and 5, there is also provided by the present invention a modified calk 59 shown in Fig. 4. Like the calks 24 and 42 this modified calk includes a main body 60 of moldable material having associated with the base thereof a substantially cup-shaped reinforcing member 61 from which extends a stud 62 having a threaded portion 63 thereon adapted to be secured in a shoe sole. Of particular importance it is to be noted that the molded body 60 of this modified calk extends but a very slight extent below the outer side 64 of the reinforcing shell. As compared with the calks 24 and 42, the calk 59 is substantially flat. However, it is to be noted that a substantial recess 65 is defined by the inner side of the shell. While, as shown, a facing of rubber or the like is not provided on the entire inner side of the shell but is provided only on the peripheral or contact edge 66 thereof to provide in effect a friction washer intermediate the shell 61 and the sole when the calk is secured in place. If desired a facing of rubber or the like may be provided on the entire inner side 67 of the shell. However, such a facing is not absolutely necessary in the case of the modified calk 59.

This flat dishlike calk 59 shown in Fig. 4 is particularly adapted for use in combination with relatively long calks 24 such as shown in Fig. 3, when the shoe is to be worn on a muddy field.

In Figs. 1 and 2 such a combination of flat calks 59 and long calks 24 is shown. As there shown a pair of long calks are secured to the heel 68, another pair of long calks are secured to the sole adjacent but forwardly of the shank portion 69 thereof and a single long calk is secured to the sole adjacent the toe portion 70 thereof. Particular attention, however, is directed to the fact that a pair of flat or short calks 59 are secured to an intermediate portion 71 of the sole between the long calk adjacent the toe portion and the pair of long calks forward of the shank portion. With such an arrangement and with the short calks 59 secured to the sole in the intermediate portion 71 thereof instead of long calks, the tendency of mud to cake on the sole is very materially minimized. At the same time the flat calks 59 provide some traction means for engaging the muddy ground.

When the ground is not muddy, but is in a normal condition or even in a very hard condition, the short calks preferably should be replaced with long calks which are interchangeable therewith in the tubular securing members 17 in the shoe sole.

Under certain conditions it may be desirable to replace all of the long calks with short calks. However, the combination of long and short calks illustrated in Figs. 1 and 2 has been found to be particularly advantageous for use on muddy ground.

In addition to providing an athletic shoe with a particularly effective traction means when combined with long calks, the flat or short calks 59 serve as a very effective means for protecting the gripping fingers 27 on the tubular securing members 17 against adverse distortion and to effectively seal the latter and the gripping fingers 27 against being adversely clogged with mud or other foreign material when the long calks are not used. In this connection attention is directed to the fact that the facing of rubber or the like on the peripheral or contact edge of the shell 61 serves not only as an effective seal but as heretofore explained, serves in effect as a friction washer to maintain the calk against adverse turning relative to the sole.

While, as shown in Fig. 3, the calk body is of substantially frusto-conical shape and is formed with continuous smooth sides, it may be sometimes preferred to form flat faces 72 on the sides of the body as shown by dotted lines. These flat faces facilitate gripping the calk when the same is screwed or unscrewed relative to the shoe sole.

Also, it is to be understood that the reinforcing member used with the several forms of calks illustrated and which is in effect a head on the threaded stud, may be formed either integral with the stud or as a separate member secured thereto.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new is:

1. A calk for a shoe sole, having a ground-engaging portion and a base, including in combination a reinforcing and holding member having an inner recessed section and an outer clamping section; a main body of moldable material on said member, having portions extending over said clamping section and providing a facing thereon constituting an outer marginal portion of the base; and means on said member, extending beyond said base for securing the calk to the sole, said base having a recess therein disposed within the outer limits defined by said clamping section and said facing.

2. A calk for a shoe sole, having a ground-engaging portion and a base with a recess therein, including in combination a cup-shaped metal shell having an inner recessed section and an outer clamping section, said outer clamping section having a peripheral clamping edge adapted to face toward said sole; a facing of rubber or the like on and overlying said peripheral clamping edge and constituting an outer marginal portion of said base, said recess being disposed within the outer limits defined by said clamping edge and said facing on the latter; and means for securing said calk to the sole and causing said facing to be clamped between said clamping edge and the shoe sole around said recess.

3. In a calk device for a shoe sole, a calk having a main body of molded material; a base on said calk having a recess therein encircled by a marginal portion; projecting teeth on said base and in said recess; a threaded stud extending from said base; a reinforcing and holding member on said stud and in said calk body adjacent said base, said member being substantially cup-shaped with the recessed side thereof facing toward said base and having a peripheral clamping section underlying said marginal portion and in line therewith for forcing the latter into firm sealing engagement with said sole when the calk is secured to the latter.

4. A calk for attachment to a shoe sole, having a ground-engaging portion and a base, including in combination a reinforcing and holding member in the form of a substantially cup-shaped

shell having an inner recessed section and a peripheral sole-clamping section; a main body of moldable material on said member, having sealing portions extending over said sole-clamping section and in line therewith, said portions in line with said sole-gripping section constituting a marginal portion of said base, said base having a recess therein disposed within the outer limits defined by said sole-clamping section and said portions in line with the latter; means for maintaining said main body and said member against adverse turning movement relative to each other; and means for detachably securing said calk to the shoe sole and causing said sealing portions to be clamped between said sole-clamping section and the shoe sole around said recess.

5. In a calk device, a calk having a main body of moldable material; a base on said main body; an insert in and completely covered by the main body, said insert being in the form of a substantially cup-shaped shell with the recessed side thereof adjacent and facing in the direction of said base; a stud on said shell and having a threaded portion extending from said base; and an enlarged portion on said stud intermediate said threaded portion and said shell, providing a shoulder facing away from and extending beyond said shell.

6. In a calk device for association with a shoe sole, a calk having a main body of molded material such as rubber or the like; a base on said main body, having a recess therein encircled by a marginal portion; a reinforcing and holding member extending substantially throughout the lateral width of said body, positioned adjacent said base and having a peripheral clamping section facing in the direction of said base; a threaded stud on said member and extending from said base; and a facing of rubber or the like on said slamping section, in line therewith and constituting said marginal portion, adapted to separate the clamping section and said sole when the calk is screwed in place thereon.

7. In a calk device for association with a shoe sole, a molded main body; a base on said main body having a recess therein; a substantially cup-shaped reinforcing and holding member associated with said main body adjacent the base thereof, with a peripheral clamping portion adapted to extend toward said sole; means on said member for securing said body to a shoe sole; and portions on said main body overlying said peripheral clamping portion, said recess being located within the outer limits defined by said clamping portion and said overlying portions on the main body, whereby said overlying portions are maintained in tight sealing engagement with said sole by said clamping portion when the main body is secured to the sole.

8. In a calk device for association with a shoe sole, a molded main body; a base on said main body having a recess therein; a substantially cup-shaped reinforcing and holding member associated with said main body adjacent the base thereof, with a peripheral clamping portion adapted to extend toward said sole; a stud extending from said reinforcing and holding member for securing said main body to a shoe sole; a shoulder on said stud and facing away from said reinforcing and holding member; and portions on said main body overlying said peripheral clamping portion, said recess being located within the outer limits defined by said clamping portion and said overlying portions on the main body, whereby said overlying portions are maintained in tight sealing engagement with said sole by said clamping portion when the main body is secured to the sole.

9. A shoe cleat formed of distortable material and adapted for rotatable attachment to a cooperating member of a shoe, and a substantially non-distortable member imbedded within the cleat for preventing distortion thereof when the cleat is forced against the shoe sole, said last mentioned member comprising an upwardly concave disc extending substantially across the cleat, said disc having a peripheral upwardly extending flange and being perforated to permit intimate interlocking with the cleat.

10. A shoe cleat formed of distortable material and adapted for rotatable attachment to a cooperating member of a shoe, and a member imbedded within the cleat for preventing distortion thereof when the cleat is forced against the shoe sole, said last mentioned member comprising an upwardly concave disc extending substantially across the cleat, said disc having a peripheral upwardly extending flange.

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