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CLEAT DEVICE

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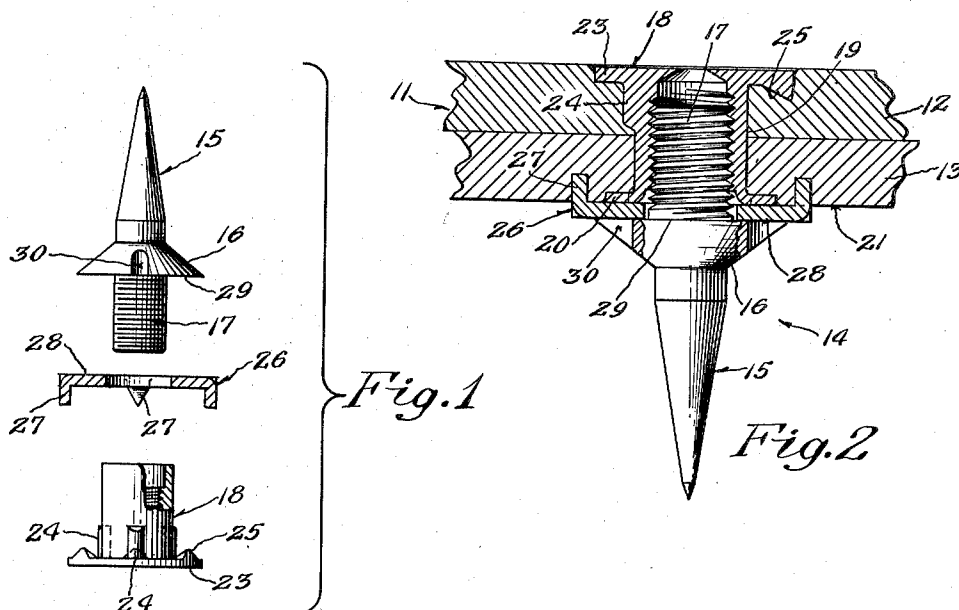


Fig. 3

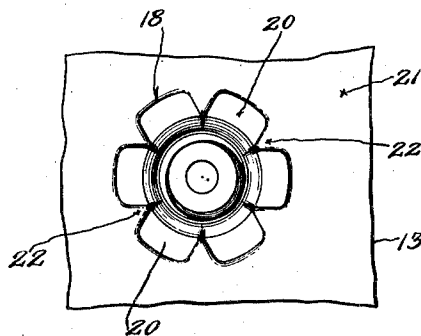


Fig. 4

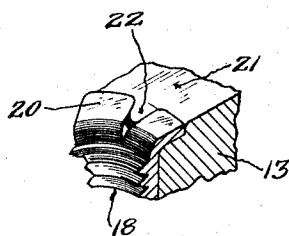
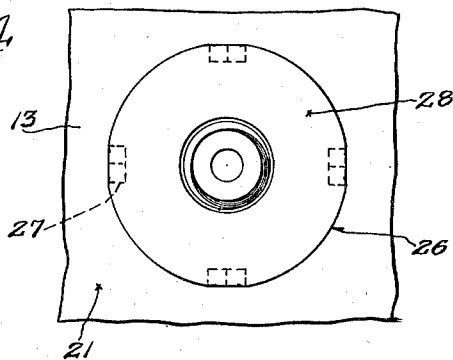


Fig. 5

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CLEAT DEVICE

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10 Claims. (Cl. 36—59)

This invention relates to a cleat device and to an improved means for securing and supporting a cleat relative to a shoe sole.

It is an object of the present invention to provide a cleat device in which the cleat is held against adverse rocking relative to the shoe sole and which at the same time is simple in construction and may be economically produced and assembled.

Another object of the invention is to provide a cleat device in which the securing means while taking full advantage of the flexibility or compressibility of a shoe sole, as of leather or the like, provides an especially advantageous seating surface for the cleat on the sole.

Other objects of the invention are to provide a cleat securing means which is advantageously maintained against adverse floating and turning relative to the shoe sole and to provide a cleat device in which the cleat is so secured and so supported that the danger of the threaded stem thereof being broken is minimized and substantially overcome.

A feature of the invention resulting from the attainment of the foregoing and other objects, resides in the provision of a cleat device in which peened over fingers at the outer end of an internally threaded tubular insert in the shoe sole are embedded in the outer side of the sole and in which a special supporting member is interposed between the fingers and the base of the cleat to provide a firm and non-flexible seating surface for the latter.

A further feature of the invention resides in the provision of a cleat device in which a cleat securing tubular insert in the shoe sole is effectively held against adverse turning or rocking in the sole and in which special means is provided for protecting the insert on the outer side of the sole and for providing a special seating surface and support for a cleat when the threaded stud of the latter is screwed into the insert, the special means being locked against turning relative to the sole.

Other objects, features and advantages will hereinafter appear.

In the drawing:

Figure 1 is an exploded view of a cleat device provided by the present invention, showing the elements thereof prior to association with a shoe sole, one of the elements being shown partially in section to enable a clearer illustration thereof.

Fig. 2 is a sectional view showing the cleat device in operative association with the shoe sole.

Fig. 3 is a view looking toward the outer side of the shoe sole, illustrating one stage in the association of the cleat device with the sole.

Fig. 4 is a view similar to Fig. 3 but illustrating a further and more advanced stage in the association of the cleat device with the sole, immediately prior to the securing of the cleat in place.

Fig. 5 is a fragmentary sectional detail view illustrating the relation of the cleat holding insert to the shoe sole.

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 for the purpose of illustration, a section of a shoe sole 11 which may be of conventional construction including an inner layer 12 and an outer layer 13 of leather or the like.

Associated with this shoe sole 11 to provide a particularly advantageous assembly is a novel cleat device 14. As shown, this cleat device includes as a working or ground engaging element, a cleat 15, which as shown may be of metal, of spike form, having an enlarged base 16 from the face 29 of which extends a threaded stem or stud 17 adapted to be received in an internally threaded tubular insert member 18 located in a suitable aperture 19 formed in the shoe sole.

The employment of cleat devices including a cleat with a threaded stud secured in a threaded insert in a shoe sole is not broadly new. However, by the present invention there is provided a cleat device 14 in which not only is the insert member 18 effectively maintained against floating and turning in the sole but in which a special support is provided for seating the cleat relative to the sole and for relieving the insert member 18 and stem 17 from forces to which the cleat is subjected in use on a shoe. To this end the insert member 18 when associated with the shoe sole, as shown in Fig. 2, is formed with radially extending fingers 20 at the outer end thereof which are embedded in the outer side 21 of the shoe sole. Ribs or wedges 22 formed and defined in the sole by the embedded fingers 20 cooperate with the latter in maintaining the in-

sert member 18 against adverse turning. A flange 23 at the inner end of the insert member is provided to prevent longitudinal movement of the latter relative to the sole in one direction and to cooperate with the radial fingers 20 in gripping the sole therebetween and in thus holding the insert against adverse floating and rocking movement in the aperture and relative to the sole. To further lock the insert member relative to the sole, longitudinal ribs 24 may advantageously be formed on the side of the insert and sole engaging projections 25 formed on the flange.

Interposed between the fingers 20 and the base 16 of the cleat 15 for the purpose of providing the advantageous support mentioned above, there is a supporting member 26 which, as shown, may be of washerlike configuration and formed with a plurality of circumferentially disposed teeth 27 adapted to bite and be embedded in the sole.

Of particular importance this supporting member 26, which preferably is formed of a hard and relatively nonflexible material, serves not only as a protector for the radially extending fingers 20, but the outer side thereof provides a firm and nonflexible seating face 28 for the base 16 of the cleat. Thus, when the cleat is drawn into a fully secured position, as shown in Fig. 2, the seating face 28 of the supporting member, which preferably is somewhat greater in extent than the corresponding and complementary flat face 29 of the cleat base 16, engages in continuous surface contact with the base in the area defined between the periphery of the latter and the threaded stud or stem 17.

With this construction, it will be readily appreciated, the full benefit of the interlocking of the fingers 20 on the insert 18 with the ribs or wedges 22 formed in the sole is realized, while at the same time, the supporting member 26 serves to firmly support the base of the cleat relative to the sole, thus relieving the threaded stem 17 from transverse breaking stresses that would otherwise be directly and forcibly induced therein by the rocking forces to which the cleat is subjected when in use on a shoe. Moreover, because of the special and effective support of the cleat base 16 by the member 26 the rocking forces which would normally be transmitted to the insert member by the threaded stem are materially and substantially checked. Hence, the danger of the insert member rocking relative to the sole and thereby enlarging the aperture to render the insert member and associated cleat wobbly, unsteady and therefore dangerous to the wearer of the shoe, is reduced to a minimum.

In effecting the advantageous association of the cleat device and shoe sole as described above, an insert member 18 in the form shown in Fig. 1 may be first inserted in the aperture 19 formed in the shoe sole with the flange 23 overlying the inner side of the sole. After insertion, and as shown most clearly in Figs. 3 and 5, the outer and preferably unthreaded end portion of the insert member 18 is scored and peened over flat to provide the radially extending fingers 20 which are preferably and advantageously pressed into the sole to form the ribs 22. Also, preferably and as shown, the degree to which the fingers are embedded in the sole is such that when the supporting member 26 is set in place, as shown in Figs. 2 and 4, the inner side thereof is flush or substantially flush with the surface of the sole.

After the location of the supporting member 26 relative to the insert member 18 and with the projecting teeth 27 thereof embedded in the sole, the stem 17 of the cleat is screwed into the insert member to draw the cleat base 16 into firm engagement with the seating face 28. If desired, and as shown, suitable slots 30 may be provided in the side walls of the cleat base for receiving dogs on a suitable tool for screwing and unscrewing the cleat.

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. In combination with a shoe sole having an aperture, an internally threaded tubular insert in said aperture; flange means on said insert for arresting movement of the latter toward the outer side of the sole; peened over portions at one end of said insert, overlying the outer side of said sole; a supporting member having an outer face, overlying said peened over portions and having projecting means extending toward and embedded in said sole; and a cleat having a base with a threaded stud extending therefrom for cooperation with said insert for drawing said cleat toward said sole and said base into substantial surface contact with the outer face of said supporting member.

2. In combination with a shoe sole having an aperture, a tubular insert in said aperture; radially extending fingers on said insert, engaging the outer side of said sole; a washerlike member overlying said fingers on the outer side of said sole; a cleat having a base with a stud extending therefrom; and cooperating means on said stud and said insert for drawing said base against the outer side of said member and for securing said cleat relative to said sole.

3. In combination with a shoe sole having an aperture, a tubular insert in said aperture; means on said insert, cooperable with said sole for arresting movement of the insert toward the outer side of said sole; peened over portions at one end of said insert, overlying and engaging the outer side of said sole; a washerlike member overlying said peened over portions on the outer side of said sole; a cleat having a base; and a screw threaded stud in said insert for drawing said base against the outer side of said member and for securing said cleat relative to said sole.

4. In combination with a shoe sole having an aperture, an internally threaded tubular insert in said aperture, having peened over portions overlying and engaging the outer side of said sole; a washerlike member overlying said peened over portions on the outer side of the sole; projecting means on said washerlike member, engageable in said sole; and a cleat having a base with a threaded stud extending therefrom and cooperable with said threaded insert for drawing said base against said washerlike member and for securing said cleat relative to said sole.

5. In combination with a shoe sole having an aperture, an internally threaded tubular insert member in said aperture, having an outer end with portions peened over the outer side of said sole; a cleat having a base with a threaded stud extending therefrom and cooperable with said threaded insert to draw said cleat and base toward said sole; and supporting means having an aperture therein, interposed between said base and said peened over portions, for engaging and supporting said base when the cleat is drawn to-

ward said sole, said supporting means having means thereon for biting into said sole.

6. In combination with a shoe sole having an aperture, an internally threaded tubular insert
5 in said aperture; radially extending fingers at one end of said insert and embedded in the outer side of said sole, said fingers defining therebetween ribs formed in said sole; a cleat having a base with a threaded stud extending therefrom
10 for cooperation with said insert; supporting means having an aperture therein, interposed between said base and said fingers; and cooperating faces on said base and said supporting means, engageable to maintain said cleat against adverse rocking relative to said sole when said cleat
15 is drawn toward the latter.

7. In combination with a shoe sole having an aperture, an internally threaded tubular insert in said aperture, having flange means for maintaining the same against adverse movement toward the outer side of said sole; radially extending fingers on said insert and embedded in the outer side of said sole, said fingers defining therebetween ribs formed in said sole; a cleat having
25 a base with a threaded stud extending therefrom and cooperative with said threaded insert to draw said cleat toward said sole; a washerlike member interposed between said cleat and said fingers, said member having a surface opposed to
30 said base for maintaining said cleat against adverse rocking relative to said sole; and means on said member for biting into said sole.

8. In combination with a shoe sole having an aperture, an internally threaded tubular insert
35 in said aperture, having portions peened over the outer side of said sole, a washerlike member, overlying said peened over portions, said last named portions being so embedded in said sole that the inner side of said member is not raised

from the sole thereby; a supporting face provided by the outer side of said member; projecting means on said member, embedded in said sole; a cleat having a base; and threaded means engageable in said tubular insert for drawing
5 said base against said supporting face and for securing said cleat relative to said sole.

9. In combination with a shoe sole having an aperture, an internally threaded tubular insert in said aperture; radially extending fingers extending outwardly from one end of said insert and embedded in the outer side of said sole; a cleat having a base with a threaded stud extending therefrom and cooperable with said threaded insert for drawing said cleat toward said sole;
15 and a supporting member interposed between said fingers and base base, said member and said base having opposed faces with substantially continuous surface contact therebetween in the area between said stud and the periphery of said
20 base when the cleat is drawn toward said sole.

10. In a device of the character described for securing relative to a shoe sole having an aperture therein, a cleat having a base with a threaded stud extending therefrom, the combination of
25 an internally threaded tubular insert in said aperture, for receiving said stud; flange means on said insert for arresting movement of the latter toward the outer side of the sole; radially extending fingers at one end of said insert, peened
30 over substantially flat and embedded in the outer side of the sole; and a supporting member overlying said fingers, having an outer face for providing substantial surface support for said base when the cleat is secured to said sole; and means
35 for preventing turning of said supporting member relative to said sole.

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