United States Patent [19]

Granger, Jr.

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[45] **Sept. 11, 1973**

[54] **GOLF SHOE CLEAT AND SUPPORT THEREFOR**

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[73] Assignee: **F. C. Phillips, Inc.**, Stoughton, Mass.

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[21] Appl. No.: **170,361**

Related U.S. Application Data

[62] Division of Ser. No. 56,467, July 20, 1970, Pat. No. 3,685,175.

[52] **U.S. Cl.** ..... **36/2.5 AH**

[51] **Int. Cl.** **A43b**

[58] **Field of Search** ..... 36/2.5 AH, 2.5 R, 36/67 D, 59 R

[56] **References Cited**

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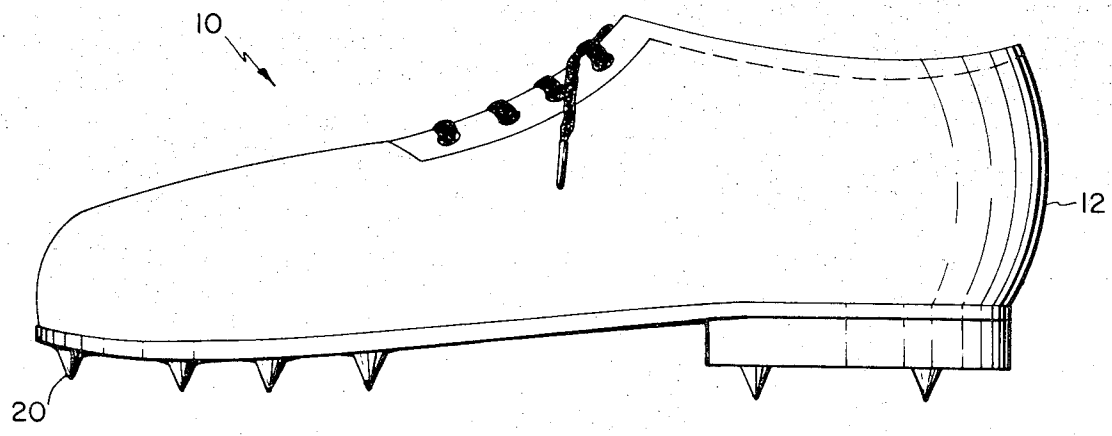
Primary Examiner—Patrick D. Lawson

Attorney—Morse, Altman & Oates

[57] **ABSTRACT**

A golf shoe having a plurality of extending cleats embedded in its bottom and fixed to an integral plate having V-shaped grooves, the apex of each of the grooves defining a hinge. The plate profile corresponds substantially to the shoe bottom profile. Each of the cleats includes a circular head and an axially extending socket having a tapered core concentric therewith and crimped therein, the tip of the core projecting from the socket.

8 Claims, 14 Drawing Figures



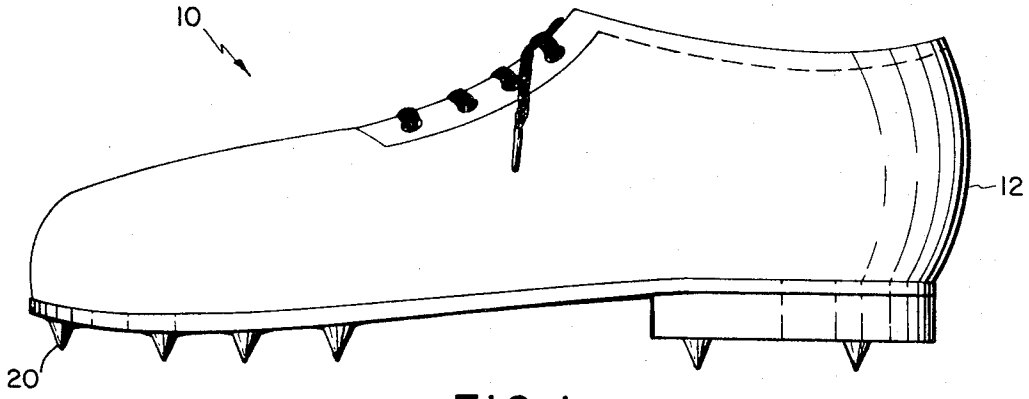


FIG. 1

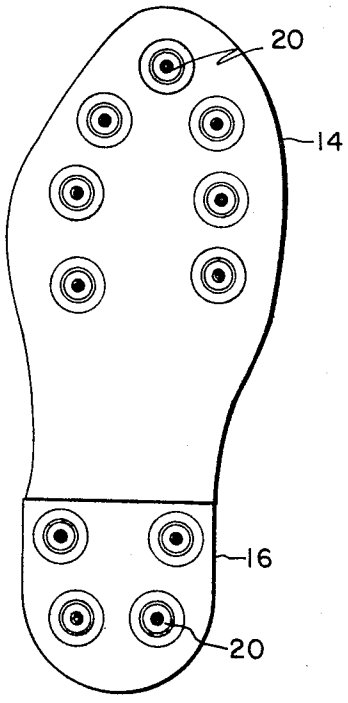


FIG. 2

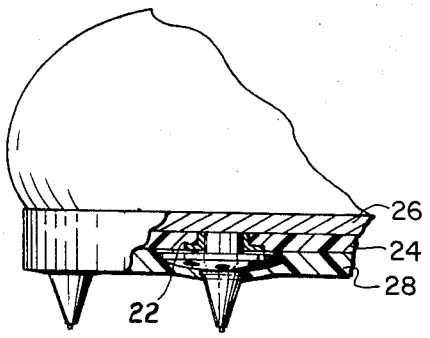


FIG. 3

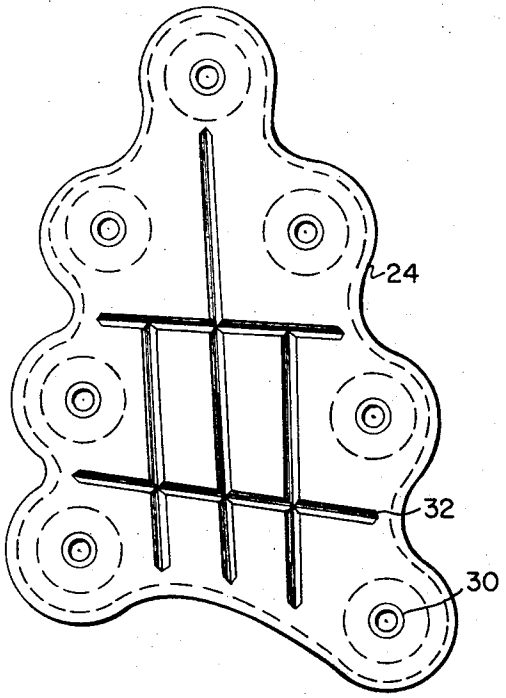


FIG. 4

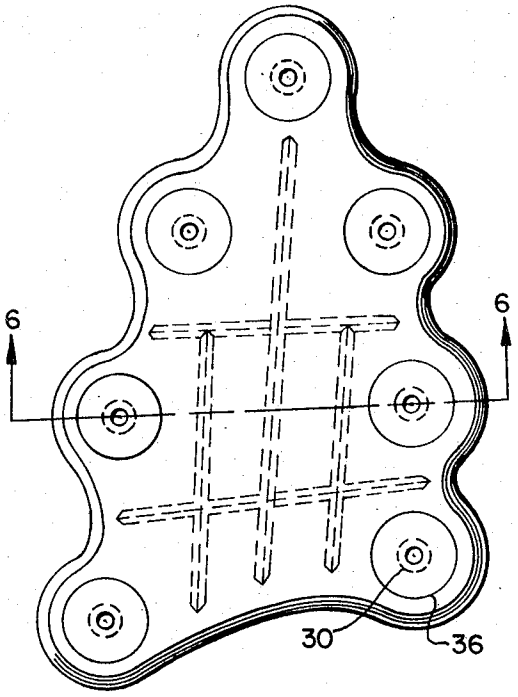


FIG. 5

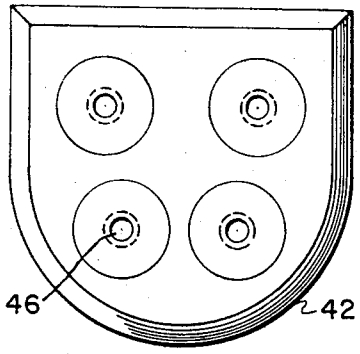


FIG. 7

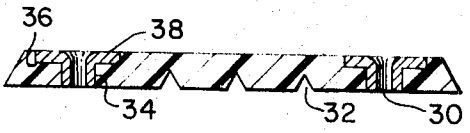


FIG. 6



FIG. 8

PRIOR ART

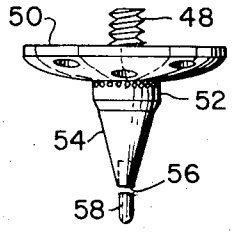


FIG. 9

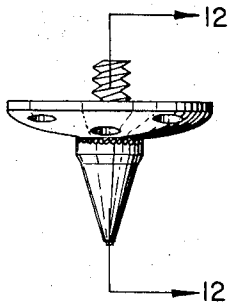


FIG. 11

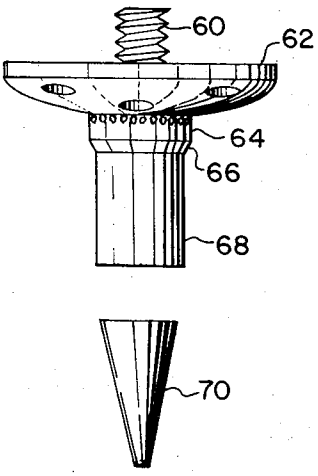


FIG. 10

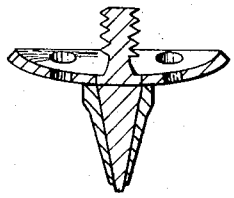


FIG. 12

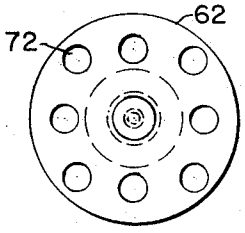


FIG. 13

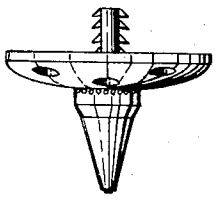


FIG. 14

GOLF SHOE CLEAT AND SUPPORT THEREFOR

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is a division of Ser. No. 56,467, filed July 20, 1970 now U.S. Pat. No. 3,685,175.

BACKGROUND OF THE INVENTION

1. Field of Invention

The invention relates to golf shoes and more particularly to golf shoe cleats and support therefor.

2. Description of the Prior Art

Various types of plate have been proposed for supporting the cleats of a golf shoe. Generally, these plates are formed with integral bosses which are adapted for engagement of the cleats. The cleats include a shaft having a tapered portion terminating in a tip at one end thereof. A hard wear-resistant metal core of right cylindrical section is pressed into an axially extending socket in the tip end of the shaft, a portion of the core projecting from the socket. Due to the rigidness of the plate which is required to afford foot stability, contact of the cleats with rigid objects renders a discomfort to the golfer. In addition, continuous abrasion of the extending socket sidewall causes the core to loosen and fall out.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a golf shoe which is characterized by a cleat support plate corresponding substantially in shape to the shoe bottom. The plate is formed with a plurality of bores adapted for fixed engagement with a sleeve and is provided with a plurality of elongated V-shaped grooves, the apex of each of the grooves defining a flexible ligamentous joint. Preferably, the support plate is composed of polypropylene. The combination of golf shoe and grooved cleat support plate is such as to provide a comfortable golf shoe.

Another object of the invention is to provide a golf shoe cleat which is characterized by a shaft having a barbed portion at one end and an axially extending socket at the other end, a circular head secured to the shaft and concentric therewith, the barbed portion and socket projecting from opposite faces of the head, and tapered core. The socket is adapted for reception of the base of the core, the apex of the core extending out of the socket. The sidewall of the socket is crimped against the core whereby the socket and core are in fixed engagement. The combination of axially extending socket having a tapered core concentric therewith and crimped therein is such as to provide a reliable golf shoe cleat.

The invention accordingly comprises the golf shoe possessing the construction, combination of elements, and arrangement of parts that are exemplified in the following detailed description, the scope of which will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings wherein:

FIG. 1 is a side elevation of a golf shoe;

FIG. 2 is a bottom plan view of the golf shoe of FIG. 1;

FIG. 3 is a side elevation, somewhat enlarged and partly in section, showing a cleat mounted to the sole portion of the shoe;

FIG.4 is a bottom plan of a sole cleat support made accord-ing to the invention;

FIG. 5 is a top plan of the support of FIG. 4;

FIG. 6 is a section taken along the lines 6—6 of FIG. 5;

FIG. 7 is a top plan of a heel cleat support made according to the invention;

FIG. 8 is a rear elevation of FIG. 7;

FIG. 9 is an exploded view in side elevation showing a conventional cleat;

FIG. 10 is an exploded view in side elevation showing a cleat during fabrication;

FIG. 11 is a side elevation showing a cleat made according to the invention;

FIG. 12 is a section taken along the lines 12-12 of FIG. 11;

FIG. 13 is a top plan of FIG. 11; and

FIG. 14 is a side elevation a cleat having a barbed shaft;

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, a golf shoe **10** embodying the invention is comprised of an upper section **12** operatively connected to a bottom section **14** having a sole portion **16** and a heel portion **18.** A plurality of cleats **20** project from the exposed sole and heel faces. The sole cleats are secured to a plurality of flanged inserts **22** which are captively held to a sole support **24** interposed between an insole **26** and an outsole **28.** Support **24** is a resilient polymer, for example a polyolefin such as polypropylene, and outside **28** is a resilient polymer, for example a vinyl elastomer such as polyvinyl chloride.

As best shown in FIGS. **4, 5,** and **6,** support **24** is a plate substantially uniform in cross section and is formed with a plurality of bores **30** and hinges **32.** The profile of plate **24,** corresponding substantially to the shoe bottom with which it is to be used but slightly smaller, is scalloped defining a curving path about each of the bores. The perimeter of plate **24** is tapered. Each of the bores are adapted for captive reception of a sleeve **34** of each of inserts **22.** The underside of support **24** is provided with a plurality of circular recesses **36** which are concentric with each of bores **30,** the diameter and thickness of each of the recesses corresponding in diameter and thickness to a flange **38** of each of inserts **22.**

In the preferred embodiment, each hinge **32,** for example elongated V-shaped grooves distributed substantially in parallel along the longitudinal and transverse axis of plate **24,** is formed by a cold-working process. That is, hinge **32** is produced by using a compression press or hot stamping maching and male forming die heated to about **275°.** It is to be understood that, in alternate embodiments, hinges **32** are formed by other than a cold-working process, for example a molding-in process in which the hinge is molded-in and flexed while still retaining internal molding heat, the flex angle being such as to cause elongation of the hinge surface beyond the yield point.

The heel cleats are secured to a plurality of flanged inserts 22 which are captively held to a heel support 42 having a substantially inform cross section. The profile of heel support 42 and corresponds substantially to the heel portion of the shoe with which it is to be used. The perimeter of support 42 is formed with a plurality of circular recesses 44 corresponding in diameter and thickness to the diameter and thickness of flange 38. At the center of each recess 44 is a bore 46 which is adapted for captive reception of sleeve 34. Preferably, heel support 42 and sole support 24 are composed of the same material.

A conventional replaceable cleat, as shown in FIG. 9, is comprised of a threaded shaft 48, a circular head 50, a circular shank portion 52, and a conical portion 54 terminating in a tip having an axial socket 56 adapted for captive reception of a core 58 of cylindrical right section.

A replaceable cleat embodying the invention, as shown in FIG. 10, is comprised of a threaded shaft 60, a circular head 62, a circular shank portion 64, a conical portion 66, and an axial socket 68 adapted for reception of a tapered core 70 of a hardened metal, for example an alloy tungsten such as tungsten carbide. As shown in FIGS. 11 and 12, core 70 is set into socket 68 and socket 68 is crimped against core 70 whereby socket 68 and core 70 are in fixed engagement. Head 62 is provided with a plurality of bores 72 for securing the cleat to the shoe bottom. It is to be understood that, in alternate embodiments, cleats are not of the replaceable type. In such case, shaft 48 is other than threaded, for example barbed, as shown in FIG. 14.

For a fuller understanding of the invention, by way of example, reference is now made to the following description of the fabrication, by an injection molding process, of a unitized golf bottom. While an injection molding process is preferred, it is to be understood that other processes may be used, for example a vulcanizing process. Cleats having barbed shafts are forced into flange insert 22 which are press fitted into the bores and recesses of the sole and heel supports. As shown in FIG. 3, a gap exists between head 62 and flange 38. The sole and heel supports are positioned in the bottom section of a split die (not shown) which is formed with a plurality of bores in spaced relation to the bores of each of the supports. The diameter of each die bore is larger than the diameter of socket 68 and smaller than the diameter of shank portion 64, whereby the conical portion of the cleat is seated in the die bore. The top section of the split die is fastened to the bottom of the die. Polyvinyl chloride is injected into the die, whereby an integral shoe bottom is formed. The polyvinyl chloride flows into the gap between the insert flange and cleat head, through the cleat head bores, and around the cleat shank. In consequence, each cleat head is embedded in the polyvinyl chloride thereby preventing the cleat from tilting and a polyvinyl chloride seal is formed about each cleat thereby preventing water and dirt from entering the inner shoe.

While a cleat having a extending shaft fixed to an insert captively mounted to a bore in a support is preferred, it is to be understood that the cleats may be fastened to the support in other ways.

Since certain changes may be made in the foregoing disclosure without departing from the scope of the invention herein involved, it is intended that all matter contained herein be construed in an illustrative and not in a limiting sense.

What is claimed is:

1. A golf shoe comprising:
   a. an upper section;
   b. a bottom section operatively connected to said upper section;
   c. a support operatively connected to said bottom section, said support formed with at least two hinges, one of said hinges directed substantially along the longitudinal axis of said support and the other of said hinges directed substantially along the transverse axis of said support; and
   d. a plurality of cleats embedded in and projecting from said bottom section.

2. The golf shoe as claimed in claim 1 wherein said support is an integral polypropylene plate and said hinges are V-shaped grooves.

3. The golf shoe as claimed in claim 2 wherein said bottom portion includes an insole and an outsole, said outsole being polyvinyl chloride.

4. The golf shoe as claimed in claim 1 wherein at least one of said cleats includes:
   a. a circular head;
   b. an axially extending socket operatively mounted to said head at one side thereof; and
   c. a tapered core, said socket adapted for reception of said core, said socket crimped to said core whereby said core is fixed in said socket.

5. The golf shoe as claimed in claim 4 wherein said core is tungsten carbide.

6. The golf shoe as claimed in claim 4 wherein said cleat includes a shaft affixed to said head at the other side thereof, the longitudinal axis of said shaft being concentric with the longitudinal axis of said socket.

7. The golf shoe as claimed in claim 1 wherein at least one of said cleats includes:
   a. a circular head;
   b. a shaft having a generally circular profile shank portion and an axially extending socket portion, said shank portion mounted to said circular head, said socket portion having an inner surface tapering downwardly and inwardly from said head; and
   c. a downwardly and inwardly tapering core in fixed frictional engagement within said socket.

8. A shoe comprising:
   a. an upper section; and
   b. a bottom section operatively connected to said upper section, said bottom section including a platform portion formed with at least two hinges, one of said hinges directed substantially along the longitudinal axis of said bottom section and the other of said hinges directed substantially along the transverse axis of said bottom section.

* * * * *