



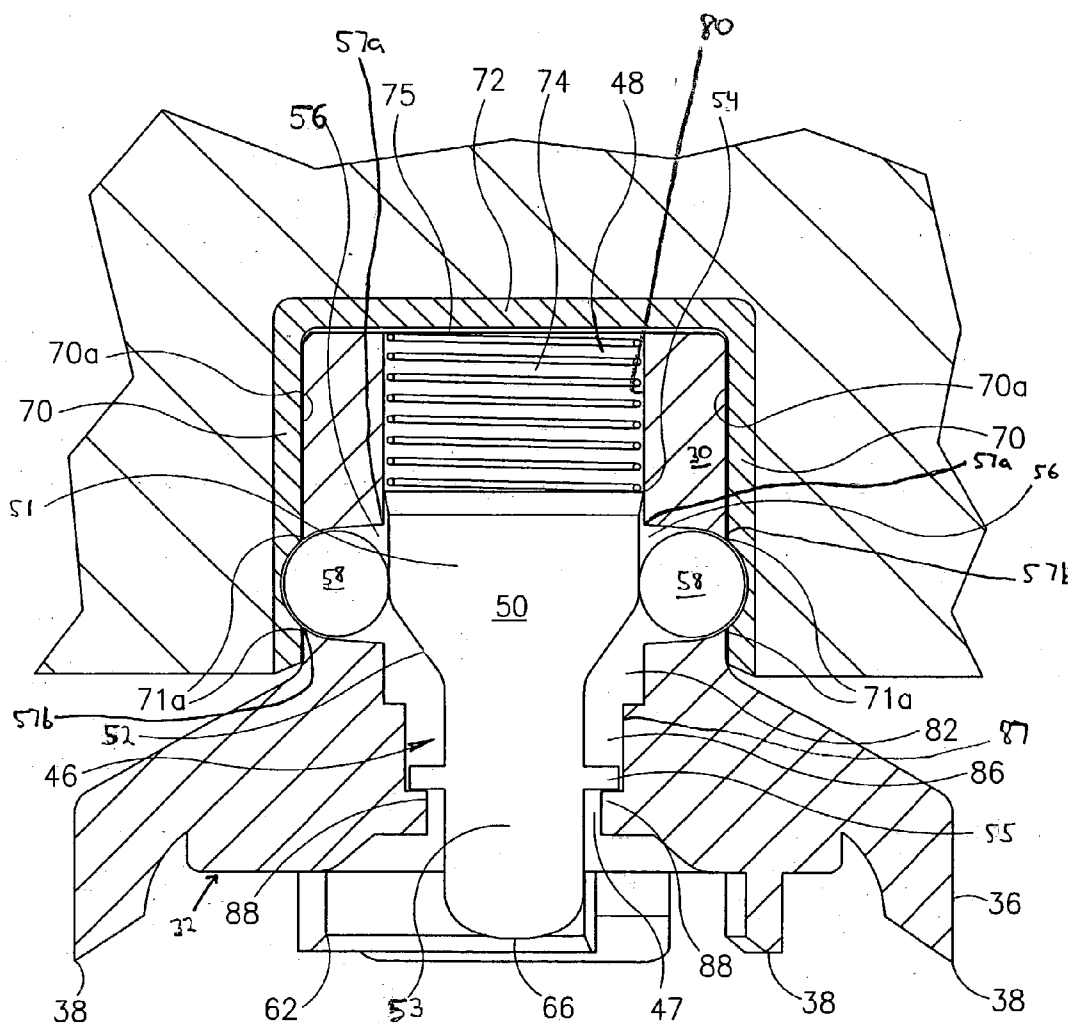
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(19) **United States**(12) **Patent Application Publication****Patton**(10) **Pub. No.: US 2004/0187356 A1**(43) **Pub. Date: Sep. 30, 2004**(54) **CLEAT AND SYSTEM THEREFOR****Publication Classification**(76) **Inventor: Jason E. Patton, Dodge City, KS (US)**(51) **Int. Cl.<sup>7</sup> ..... A43B 5/00**(52) **U.S. Cl. .... 36/134**

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**POLSINELLI SHALTON WELTE****SUELTHAUS P.C.****700 W. 47TH STREET****SUITE 1000****KANSAS CITY, MO 64112-1802 (US)**(57) **ABSTRACT**

A cleat is disclosed that can be inserted into and locked into a receptacle in a shoe bottom as locking members engage portions of the receptacle in the shoe bottom. The cleat can be easily removed from the receptacle with minimal force, by pushing a pin inward to disengage locking members, freeing the cleat from the locking engagement allowing for removal of the cleat from the shoe bottom.

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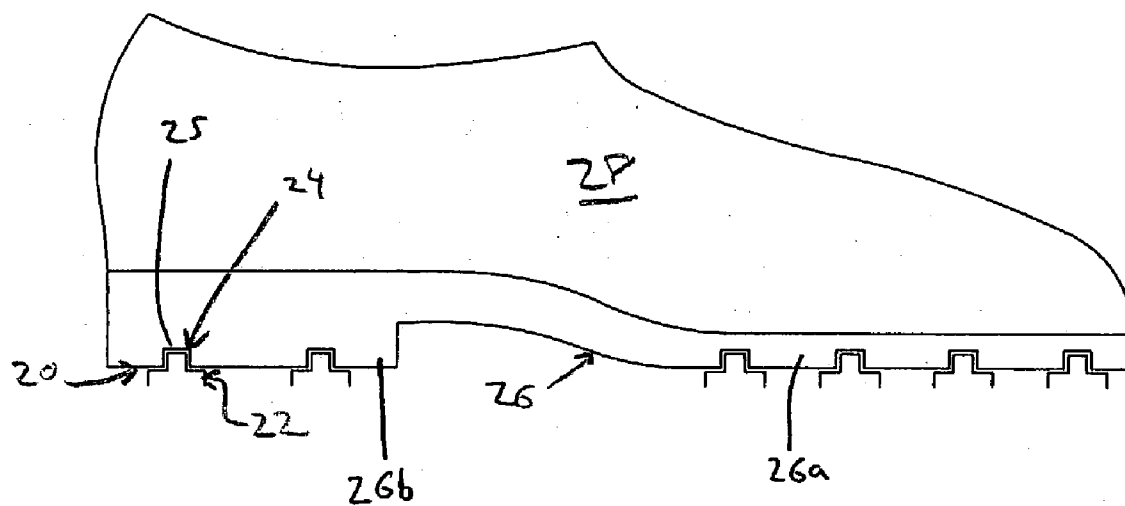


FIG.1

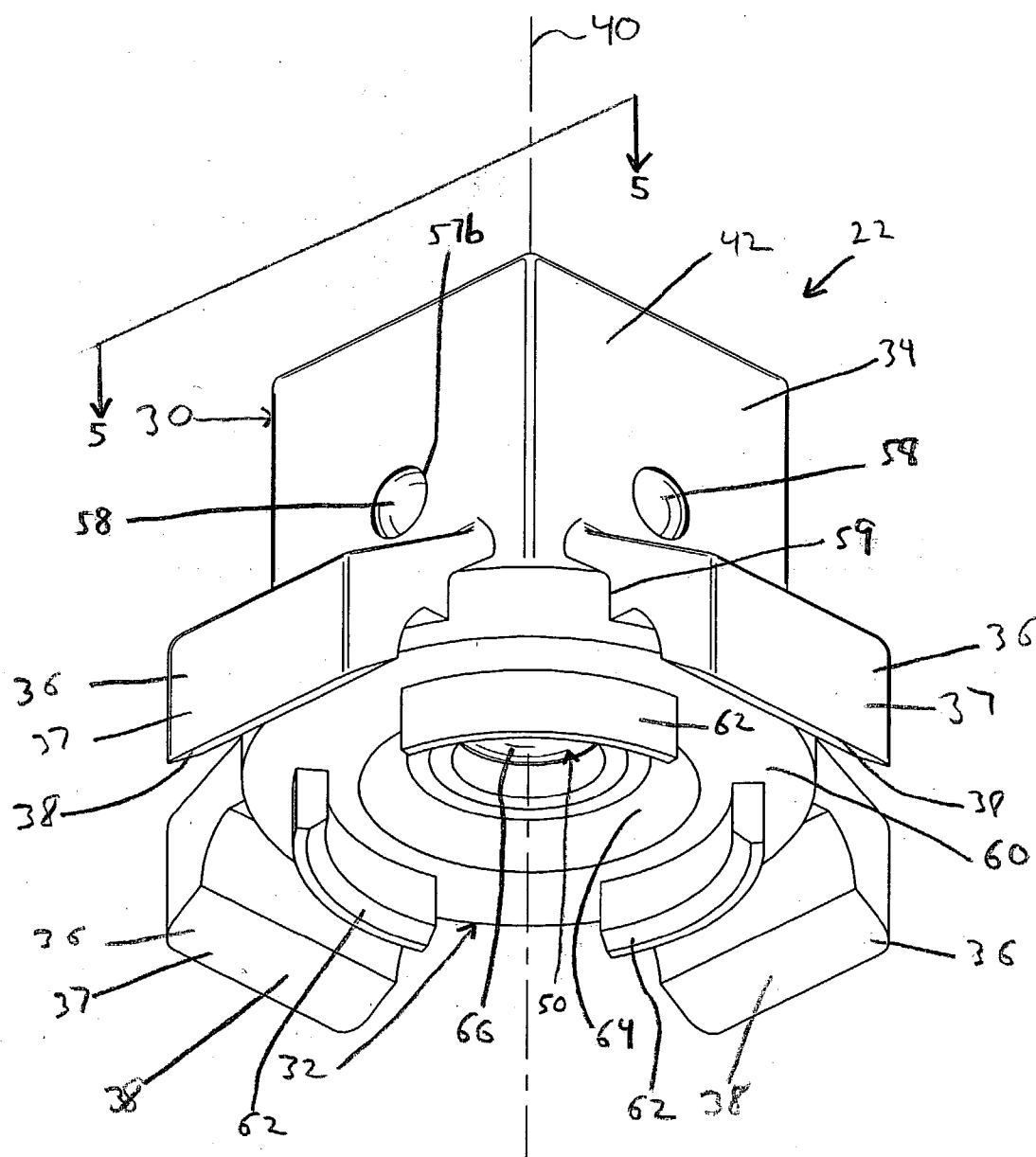


FIG.2

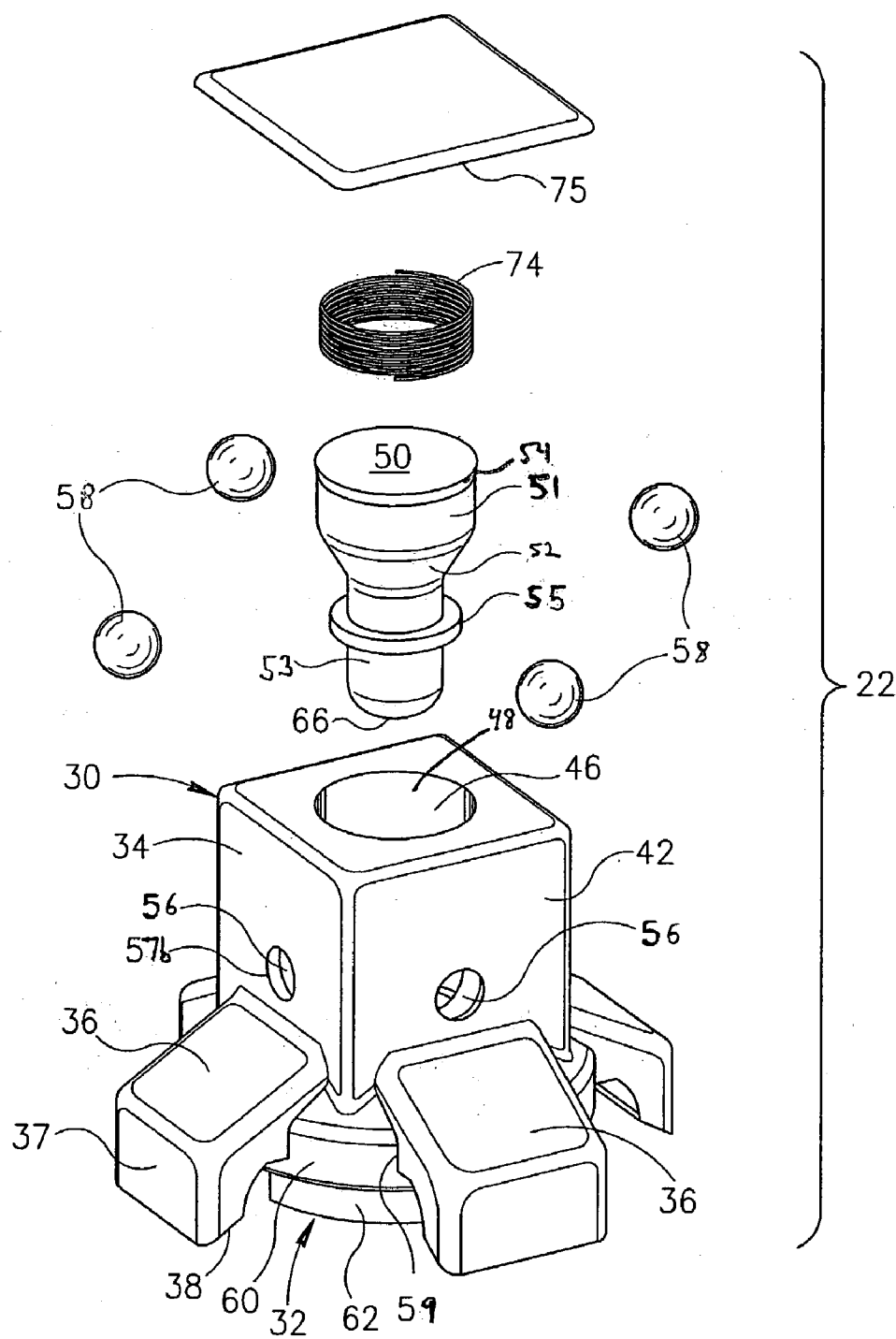


FIG. 3

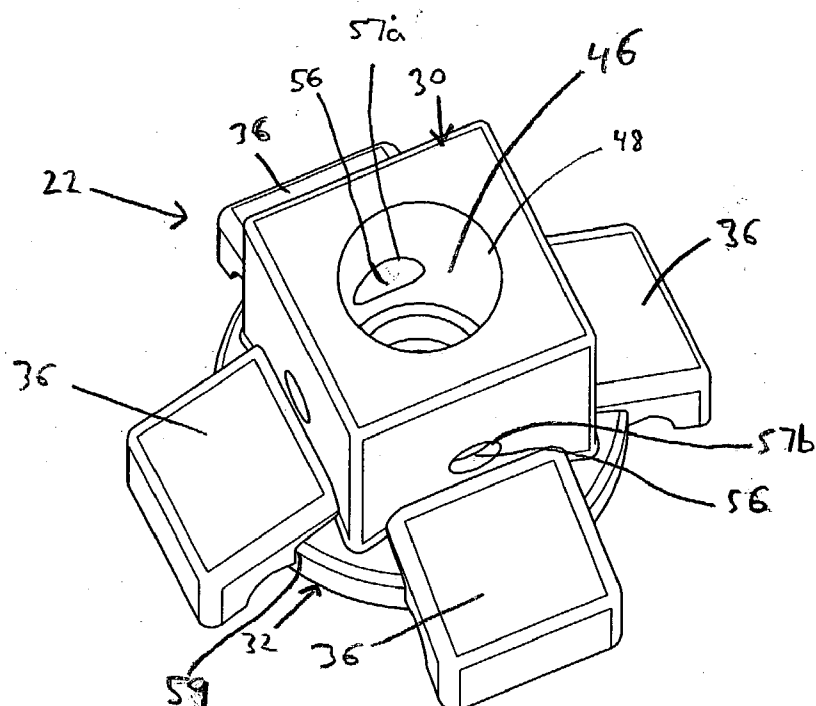


FIG. 4A

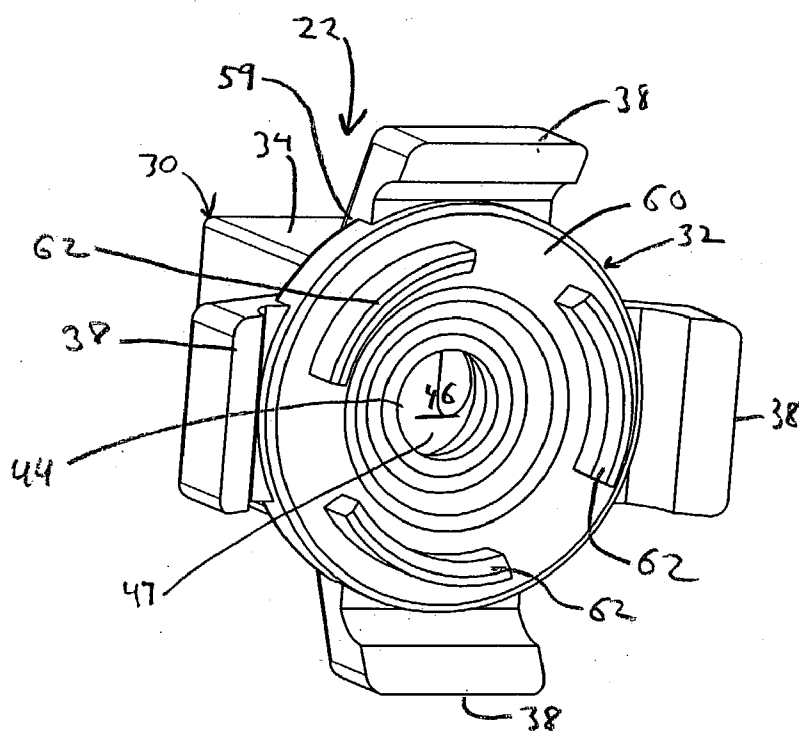


FIG. 4B

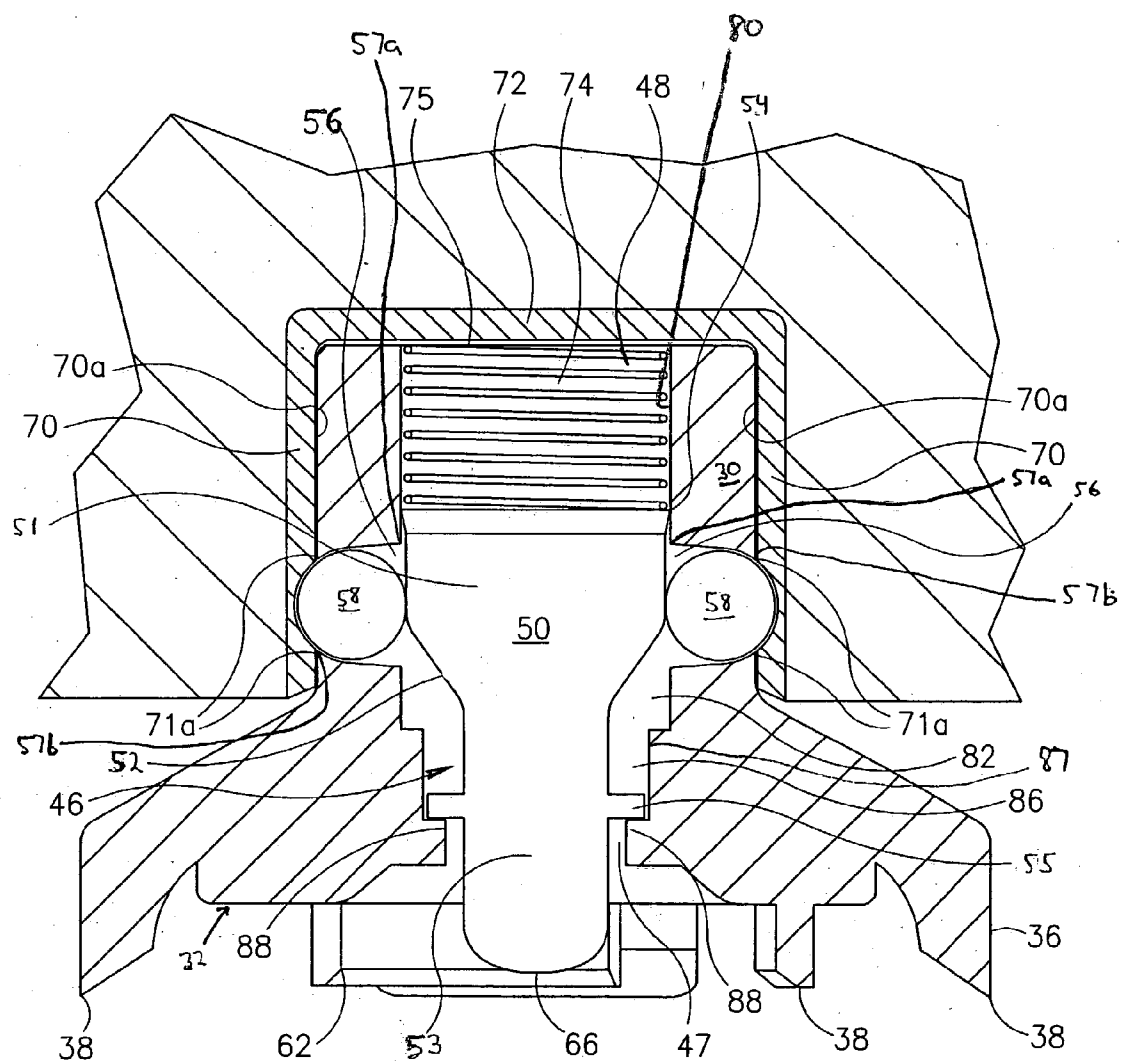


FIG.5A

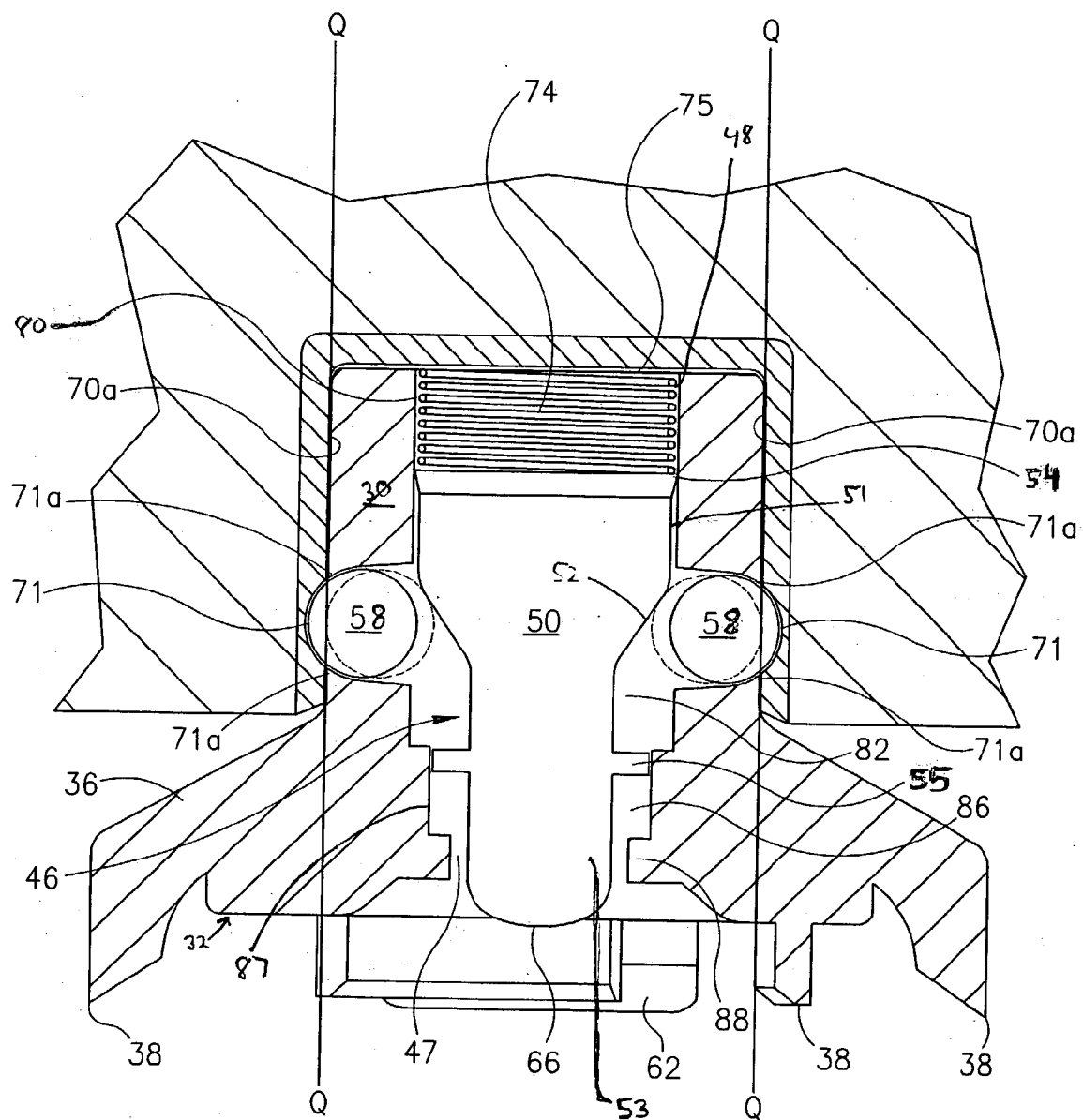


FIG. 5B

## CLEAT AND SYSTEM THEREFOR

### TECHNICAL FIELD

[0001] The present invention relates to athletic and recreational footwear, and in particular cleats for golfing footwear that provide the user with enhanced grip at the location on which they are standing, these cleats being easily insertable into and removable from the shoe bottom.

### BACKGROUND

[0002] The proper athletic footwear will affect the performance of an athlete. This is particularly true with golfing footwear, as the golfer should have proper traction in the ground when taking the various shots. These shots range from Tee Shots, to field shots to putts.

[0003] Golfing footwear, commonly known as "golf shoes" typically include spikes or cleats on their bottoms. These spikes or cleats are typically arranged, such that four are positioned on the heel bottom, with anywhere from three to seven arranged on the sole bottom.

[0004] Traditional golf spikes or cleats included rods with a central collar. One end of the rod was threaded, to fit into a correspondingly threaded portion of the shoe bottom. The other end extended from the shoe bottom, and served to anchor the golfer in the ground. These spikes or cleats required removal by special wrenches and other similar tools. These traditional spikes or cleats are no longer permitted at most golf courses.

[0005] Accordingly, cleat-type spikes, also known as cleats, have replaced the traditional spikes or cleats, as these cleat-type spikes are permitted at almost all golf courses. These cleat-type spikes typically include a main or platform portion with multiple protrusions or spikes extending from the main or platform portion. On the opposite side of this main or platform portion is a threaded stub, that fits within a correspondingly threaded portion of the shoe bottom. Alternately, systems such as Fast Twist™ or Q-Fit™ use other locking elements on this main or platform portion, that are received by corresponding portions in the shoe bottom. All of these cleat-type spikes must be removed from, and in some cases attached to the corresponding portions in the shoe bottom with pliers, wrenches or other specialized tools.

### SUMMARY

[0006] The present invention improves conventional athletic and golfing footwear by providing cleats (that can also be referred to as spikes) that can be easily inserted into and removed from the shoe bottom by the user, with one hand, absent any special tools, wrenches or the like, in a substantially straight manner, without having to be twisted into the shoe bottom. The insertion and removal of the cleats from the shoe bottom is simple and can be performed instantaneously.

[0007] The cleat can be inserted into and locked into a correspondingly shaped receptacle in a shoe bottom as locking members engage portions of the receptacle in the shoe bottom. The cleat can be easily removed from the receptacle with minimal force, by pushing a pin inward to disengage locking members, freeing the cleat from the locking engagement allowing for removal of the cleat from the shoe bottom.

[0008] One embodiment of the invention is directed to a cleat comprising, a body, terminating in at least one spike at an end, at least one locking member moveable in the body, and a pin. The at least one locking member is such that at least a portion thereof is configured for extending beyond the body when the at least one locking member is forced outward. The pin extends at least partially into the body and is slideable in the body. It is moveable between a first position, where the at least one locking member is forced outward and the at least a portion of the at least one locking member extends beyond the body, and a second position, where the at least one locking member is movable inward in the body.

[0009] Another embodiment is directed to a system for retaining a removable cleat comprising, a receptacle, including at least one receiving portion, and a cleat. The cleat includes a body configured for receipt in the receptacle, the body terminating in at least one spike at an end, at least one locking member moveable in the body, at least a portion of the at least one locking member configured for engaging the receiving portion of the receptacle when the at least one locking member is forced outward, and a pin. The pin extends at least partially into the body and is slideable in the body. The pin is moveable between a first position, where the at least one locking member is forced outward, and a second position, where the at least one locking member is movable inward in the body.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Attention is now directed to the drawings, where like numerals and characters indicate like or corresponding components. In the drawings:

[0011] FIG. 1 is a partial cross sectional view of an embodiment of the present invention;

[0012] FIG. 2 is a perspective view of an embodiment of the cleat of the present invention; and

[0013] FIG. 3 is an exploded view of the embodiment of FIG. 2;

[0014] FIGS. 4A and 4B are perspective views of the embodiment of FIG. 2 with the pin and end wall of the inner chamber removed;

[0015] FIG. 5A is a cross-sectional view of the embodiment of FIG. 2 taken along line 5-5, when the cleat is in the rest or locked position during use; and

[0016] FIG. 5B is a cross-sectional view of the cleat of FIG. 5A when it is in the unlocked position for removal from the shoe bottom.

### DETAILED DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 shows an embodiment of the system 20. The system 20 includes a cleat 22 and a receptacle 24 for the cleat 22 in a cut-out 25 in shoe bottom 26 (for example, having a sole 26a and heel 26b) of, for example, a golf shoe 28. The cleats 22 and corresponding receptacles 24 are arranged on the shoe bottom 26, for example, as is conventional for golf shoes. While a golf shoe 28 is shown, it is exemplary only, as the cleats 22 and receptacles 24, as well as the system 20, can be in any athletic shoe, boot or other footwear.



[0018] Turning also to FIGS. 2, 3, 4A and 4B, the cleat 22 typically includes an outer member 30 and an inner member 32, typically joined together as a unitary member. The outer member 30 includes a stem portion 34 from which arms 36 extend. The ends 37 of the arm 36 form spikes 38, that are substantially parallel to the longitudinal axis 40 (shown extending through the cleat 22).

[0019] In FIG. 3, the outer member 30, and in particular, the stem portion 34, is shown divided (its end wall 75 is separated from the remainder of the member 32). The outer member 30 can be of multiple pieces, although it is typically a single piece, and therefore, this drawing figure is for illustration and description purposes.

[0020] The stem portion 34 includes an outer side 42, shaped to conform with a corresponding receptacle 24 in the shoe bottom 26, and an inner side 44, into which an inner chamber 46 extends. This inner chamber 46 accommodates at least a portion of a pin 50, typically a substantial portion thereof, slideable (moveable) within the chamber 46. The inner chamber 46 includes an open end 47 and a closed end 48. The stem portion 34, while shown as rectangular, can be of any shape, for example, square or cylindrical, provided it can be accommodated by a correspondingly shaped receptacle 24, here, for example, rectangular, in the shoe bottom 26.

[0021] The pin 50 is typically an integral member, formed of a head portion 51, a tapered portion 52 and a tail portion 53. The tail portion 53 is of a smaller diameter than the head portion 51. The head portion 51 includes a rim 54 of a diameter configured for making frictional contact with the wall(s) 80 of the first bore portion 82 of the inner chamber 46 (as shown in FIGS. 5A and 5B and detailed below), such that sliding of the pin 50 can be controlled. A collar 55 extends around the tail portion 53. The pin 50 is typically of a hard material such as polypropylene, for example, made as a single piece by techniques such as injection molding. Cavities 56, extend from inner 57a openings in this inner chamber 46 to outer openings 57b in the outer side 42 of the stem portion 34. These cavities 56 are configured for accommodating ball bearings 58, or other movable members. The cavities 56, are tapered inward, towards the outer side 42. This tapering results in the outer openings 57b of a diameter just slightly smaller than the hemispherical diameter (the maximum diameter) of the ball bearings 58. This allows a portion of each respective ball bearing 58 to extend out of the outer opening 57b in the cavity 56 and seat in the corresponding groove 71 (FIGS. 5A and 5B) of the receptacle 24, to lock the cleat 22 in the shoe bottom 26 (in the receptacle 24). While four cavities 56, with corresponding ball bearings 58 are shown, this is exemplary only, as any number of cavities 56 with their respective ball bearings 58, is sufficient, provided the cleat 22 is in a sufficiently strong locking engagement with the receptacle 24.

[0022] There are, for example, four arms 36, extending from the stem portion 34, although any number of arms 36 is permissible. The arms 36 include notches 59, and coupled with the shape of the inner side 44 of the stem portion 34, receive the inner member 32, typically in a frictionally snug and tight fit. The inner member 32 and outer member 30 may also be joined by adhesives, welds or the like.

[0023] The inner member 42 typically includes a platform 60. Spikes 62, typically protrude from this platform 60.

These spikes 62 are typically substantially parallel to the longitudinal axis 40. While three spikes 62 are shown, this is exemplary only, as any number of spikes 62, of various shapes, is permissible. The platform 60 is typically a torroid, whose inner surface 64 is inwardly tapered to form a smooth transition with the inner chamber 46. The pin 50, and in particular, its end surface 66 of the tail portion 53, typically extends into the area within this platform 60.

[0024] The outer member 30 is typically an integral piece made of polypropylene, by techniques, such as injection molding or the like. The inner member 32 is typically an integral piece made of polypropylene, by techniques, such as injection molding or the like. The outer member 30 and inner member 32, could also be formed as a single member, for example, by techniques such as injection molding and the like. Also, for example, the joined outer 30 and inner 32 members, or if these outer 30 and inner 32 members are formed as a single member, can define a cleat body.

[0025] Turning also to FIGS. 5A and 5B, there is shown the pin 50 within the inner chamber 46 of the outer member 30 in detail. Here, the cleat 22 is in its receptacle 24 in the shoe bottom 26. The receptacle 24, for example, here is box-like and rectangular-shaped, as it is typically placed into and/or mounted in a correspondingly shaped cut-out 25 in the shoe bottom 26. It is typically formed of lateral wall(s) 70 (having surfaces 70a), with grooves 71 (having edges 71a) extending into these walls 70 for accommodating the portions of the ball bearings 58, and an end wall 72. Alternately, the receptacle 24 could be formed by grooves 71 in the cut-out 25 itself.

[0026] The pin 50 seats within the inner chamber 46 so as to be slideable therein, and is typically sized such that its tail portion 53 extends out of the open end 47 into the area of the inner member 32. A spring 74, for placing an outward force on the pin 50 (when the spring is 20 relaxed) is in the chamber 46, between the end wall 75 of the closed end 48 of the chamber 46 and the pin 50. The spring 74 is typically a coil spring of a diameter slightly less than that of the diameter of the first bore portion 82 (FIGS. 5A and 5B) of the chamber 46, so as to remain in position between the pin 50 and the end wall 75 of the chamber 46.

[0027] The pin 50 is such that its rim 54 makes frictional contact with the lateral wall(s) 80 of a first bore portion 82 of the chamber 46. The collar 55, that extends around the tail portion 53, is of a diameter just smaller than the second bore portion 86 (to slide along the wall(s) 87 of this second bore portion 86) of the chamber 46. This diameter of the collar 55 is greater than the lip 88 at the end of the chamber 46, such that the lip 88 serves as a stop surface for the collar 55, retaining the pin 50 in the chamber 46.

[0028] The inner chamber 46 is such that the first bore portion 82 is of a larger diameter than the second bore portion 86, to accommodate respective head 51 and tail 53 portions of the pin 50. The spring 74 is of a character (or spring constant) that when in the relaxed position, as shown in FIG. 5A, coupled with the pin 50, will place the head portion 51 of the pin 50 into frictional contact (abutment) with the ball bearings 58, forcing the ball bearings 58 outward, such that the maximum possible portions of the respective ball bearings 58 seat in the corresponding groove 71 of the receptacle 24. This allows for the cleat 22 to be locked in the receptacle 24 of the shoe bottom 26.

[0029] Similarly, the spring 74 is also of a character (or spring constant), as shown in FIG. 5B, that when compressed, will keep the collar 55 within the second bore portion 86, and will create a space within the first bore portion 82, for the ball bearings 58 when forced inward (the ball bearings 58 shown in broken lines). This occurs, for example, when the cleat 22 is being removed from the receptacle 24 or installed therein. The space for the ball bearings 58 is sufficient, such that the inward movement of the ball bearings 58 moves them inside of or tangent to the planes Q-Q (corresponding to the surface 70a of the lateral wall(s) 70 of the receptacle 24). This inward seating of the ball bearings 58 upon their inward movement allows for removal or installation of the cleat 22, with little if any friction or resistance.

[0030] An exemplary operation of the system 20 will now be detailed by making reference to FIGS. 5A and 5B. Here, a cleat 22 will be placed into a shoe or other footwear, for example, a golf shoe 28. Additional cleats will be installed and uninstalled from the golf shoe 28 in a manner similar or identical to that described below. Initially, the cleat 22 is separate from the shoe 28.

[0031] When desired, the cleat 22 is placed into the receptacle 24 in the shoe bottom 26, with the user pressing the pin 50 (typically with a thumb at the end surface 66), inward (compressing the spring 74) until the stem portion 34 can not be pushed in further, due to its abutment with the end wall 72 of the receptacle 24. The lateral wall(s) 70 of the receptacle 24 provide force to keep the ball bearings 58 inside of or tangent to the planes Q-Q, and once the abutment of the stem portion 34 and end wall 72 of the receptacle 24 is felt, the pin 50 is released. This release causes the spring 74 to relax (expand) moving the pin 50 outward, such that the head portion 76 of the pin contacts and pushes the ball bearings 58 outward. This outward movement of the ball bearings 58 seats them in the respective groove 71 of the lateral wall(s) 70 of the receptacle 24, causing the cleat 22 to be locked in the receptacle 24, as shown in FIG. 5A.

[0032] This locking is typically felt by the user. To insure complete seating of all the ball bearings 58 in their respective grooves 71, the cleat 22 may be wiggled, such that the engagement of all ball bearings 58 in their respective grooves 71 occurs. The cleat 22 will remain locked in this receptacle 24, with the pin 50 in contact with the ball bearings 58, now seated in the grooves 71 of the receptacle 24, and the collar 55 in contact with the lip 88, until removal of the cleat 22 from the receptacle 24 is desired.

[0033] When removal of the cleat 22 is desired, the user pushes on the end surface 66 of the tail portion 53 of the pin 50. As shown in FIG. 5B, the spring 74 compresses, allowing the pin 50 to move inward, into the chamber 46. The head portion 51 of the pin 50 moves out of contact with the ball bearings 58. This pin movement 50 creates a space for the ball bearings 58 in the first bore portion 82, as the tapered portion 52 and tail portion 53 are proximate to the ball bearings 58. The cleat 22 can now be pulled outward (typically straight outward), from the receptacle 24. This outward pulling, forces the ball bearings 58, into contact with the edges 71a of the grooves 71, forcing the ball bearings 58 inward, with portions moving into the above-mentioned space (as shown in broken lines), and inward of

or tangent to the planes Q-Q. With the ball bearings 58 now inside their respective cavities 56 (or sliding along the surfaces 70a of the lateral wall(s), the cleat 22 can be completely removed from the receptacle 24 and the shoe 28, with minimal if any resistance (friction).

[0034] With the cleat 22 now outside of the receptacle 24 and the shoe 28, the pressure on the pin 50 can be released. The spring 74 returns to its relaxed position, with the pin 50 pushed outward and the ball bearings 58 moved outward, to the positions shown in FIG. 5A.

[0035] There has been shown and described at least one preferred embodiment of a cleat and system for its use. It is apparent to those skilled in the art, however, that many changes, variations, modifications, and other uses and applications for the aforementioned device, system and its components are possible, and also such changes, variations, modifications, and other uses and applications which do not depart from the spirit and scope of the invention are deemed to be covered by the invention, which is limited only by the claims which follow.

What is claimed is:

1. A cleat comprising:

a body, the body terminating in at least one spike at an end;

at least one locking member moveable in the body, at least a portion of the at least one locking member configured for extending beyond the body when the at least one locking member is forced outward; and

a pin extending at least partially into the body and slideable in the body, the pin moveable between a first position, where the at least one locking member is forced outward and the at least a portion of the at least one locking member extends beyond the body, and a second position, where the at least one locking member is movable inward in the body.

2. The cleat of claim 1, wherein the body includes a stem portion and at least one arm extending from the stem portion, the end of the at least one arm defining the at least one spike.

3. The cleat of claim 1, wherein the stem portion includes a chamber extending therein, the chamber including an open end and a closed end, a first portion for accommodating the pin, and at least one second portion for accommodating the at least one locking member.

4. The cleat of claim 3, wherein the first portion of the chamber is in communication with the at least one second portion of the chamber.

5. The cleat of claim 4, wherein the first portion of the chamber is substantially perpendicular with respect to the at least one second portion of the chamber.

6. The cleat of claim 3, additionally comprising: a spring intermediate the pin and the closed end of the chamber.

7. The cleat of claim 6, wherein the spring is biased to force the pin outward.

8. The cleat of claim 7, wherein the pin includes and outwardly extending collar and the stem portion includes a lip extending into the chamber, the lip for preventing outward movement of the collar.

9. The cleat of claim 1, wherein at least one spike includes a plurality of spikes.

**10.** The cleat of claim 1, wherein the at least one locking member includes a plurality of locking members.

**11.** The cleat of claim 10, wherein the locking members include ball bearings.

**12.** The cleat of claim 4, wherein the at least one second portion of the chamber includes a plurality of second portions.

**13.** The cleat of claim 2, wherein the at least one arm includes a plurality of arms.

**14.** The cleat of claim 13, additionally comprising: an auxiliary member configured for seating proximate to the body within the plurality of arms, the auxiliary member including a plurality of spikes.

**15.** A system for retaining a removable cleat comprising:

a receptacle, the receptacle including at least one receiving portion; and

a cleat, the cleat comprising:

a body configured for receipt in the receptacle, the body terminating in at least one spike at an end;

at least one locking member moveable in the body, at least a portion of the at least one locking member configured for engaging the receiving portion of the receptacle when the at least one locking member is forced outward; and

a pin extending at least partially into the body and slideable in the body, the pin moveable between a first position, where the at least one locking member is forced outward, and a second position, where the at least one locking member is movable inward in the body.

**16.** The system of claim 15, wherein the body includes a stem portion and at least one arm extending from the stem portion, the end of the at least one arm defining the at least one spike.

**17.** The system of claim 15, wherein the stem portion includes a chamber extending therein, the chamber includ-

ing an open end and a closed end, a first portion for accommodating the pin, and at least one second portion for accommodating the at least one locking member.

**18.** The system of claim 17, wherein the first portion of the chamber is in communication with the at least one second portion of the chamber.

**19.** The system of claim 18, wherein the first portion of the chamber is substantially perpendicular with respect to the at least one second portion of the chamber.

**20.** The system of claim 17, additionally comprising: a spring intermediate the pin and the closed end of the chamber.

**21.** The system of claim 20, wherein the spring is biased to force the pin outward.

**22.** The system of claim 21, wherein the pin includes and outwardly extending collar and the stem portion includes a lip extending into the chamber, the lip for preventing outward movement of the collar.

**23.** The system of claim 15, wherein at least one spike includes a plurality of spikes.

**24.** The system of claim 15, wherein the at least one locking member includes a plurality of locking members.

**25.** The system of claim 24, wherein the locking members include ball bearings.

**26.** The system of claim 18, wherein the at least one second portion of the chamber includes a plurality of second portions.

**27.** The system of claim 16, wherein the at least one arm includes a plurality of arms.

**28.** The system of claim 27, additionally comprising: an auxiliary member configured for seating proximate to the body within the plurality of arms, the auxiliary member including a plurality of spikes.

**29.** The system of claim 15, wherein the receptacle is configured for receipt in a shoe bottom.

**30.** The system of claim 15, wherein the at least one receiving portion includes at least one groove.

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