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(51) INT CL^7
A43C 15/16

(52) UK CL (Edition T)
A3B B14A5

(56) Documents Cited
GB 1263960 A **US 6006454 A**
GB 2341783 and www.lawai.com/html/leaderspikes.html as retrieved on 05.12.00

(58) Field of Search
UK CL (Edition R) **A3B**
INT CL^7 **A43B 13/24 13/26 , A43C 13/04 15/16**
ONLINE: WPI, EPODOC, JAPIO

(54) Abstract Title
Antislip device

(57) An antislip device for attachment to a shoe comprises a block 60 having an upper fastening portion 61 and an outer peripheral portion. A peripheral skirt 70 is attached to and extends radially outward from the outer peripheral portion, wherein the peripheral skirt has a greater resilience than the block. The peripheral skirt also includes at least one downwardly projecting spike 71. Preferably, the block comprises a lower portion having one or more spikes 62. The peripheral skirt may further incorporate an air cushioning device 80 which typically comprises a cup member 81 having an air passage 83 communicating with a chamber 82 to allow air to flow into and out of the cup member. The at least one spike on the peripheral skirt may include a cylindrical end portion (74, Fig. 10) having a diameter less than a frustum-shaped base portion (73, Fig. 10).

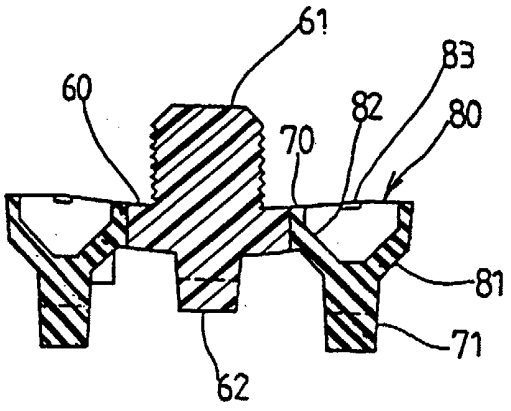

FIG. 9

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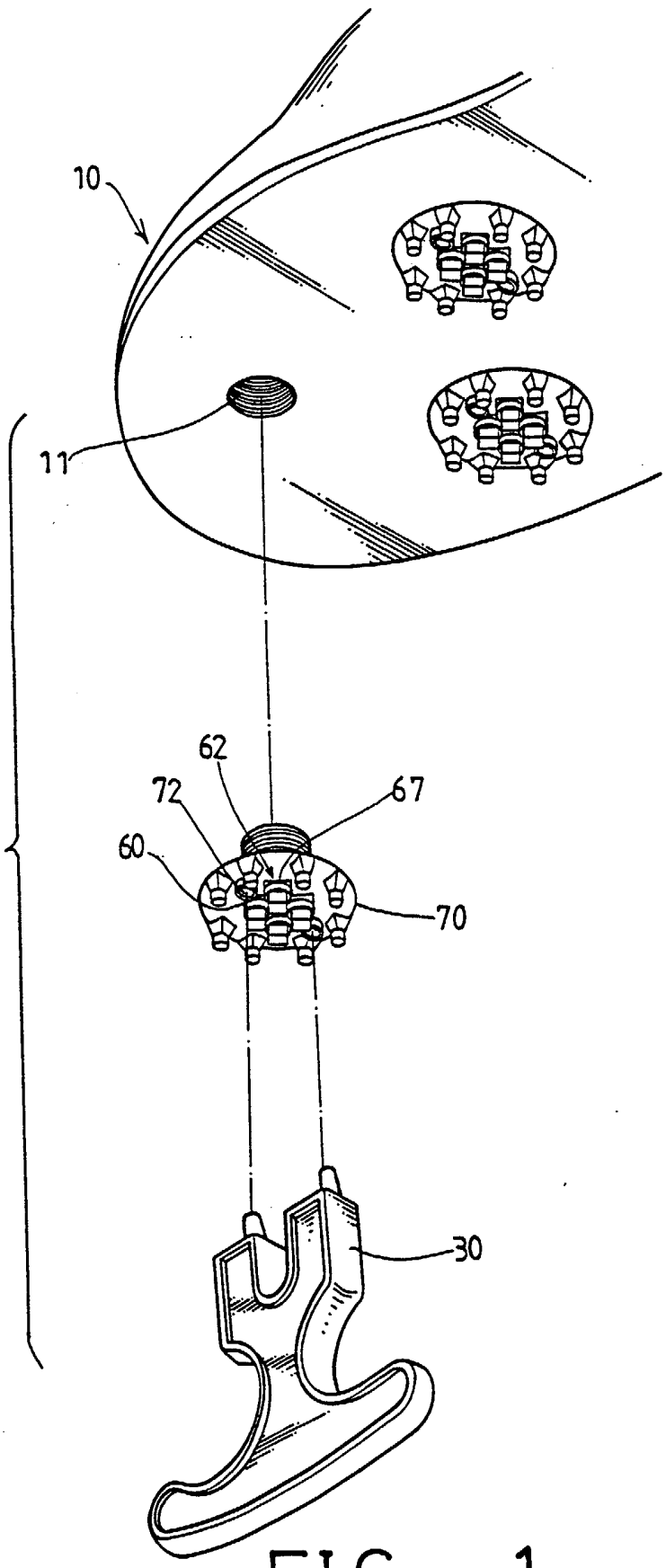

FIG. 1

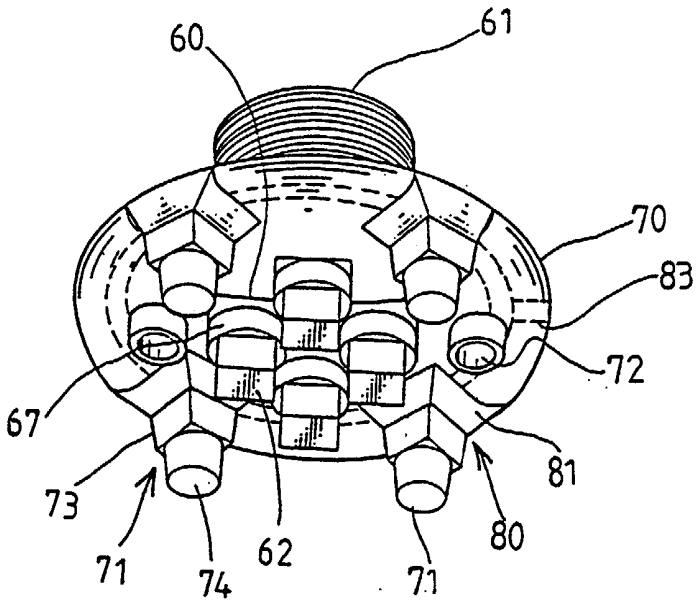

FIG. 2

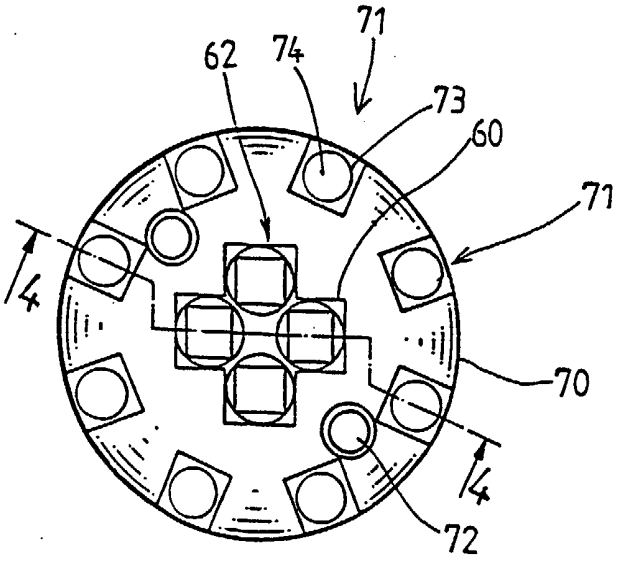

FIG. 3

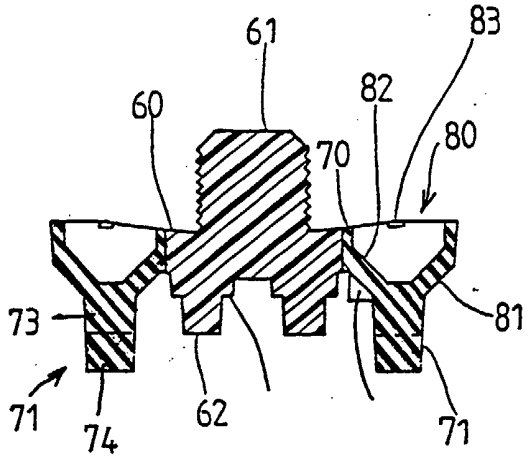

FIG. 4

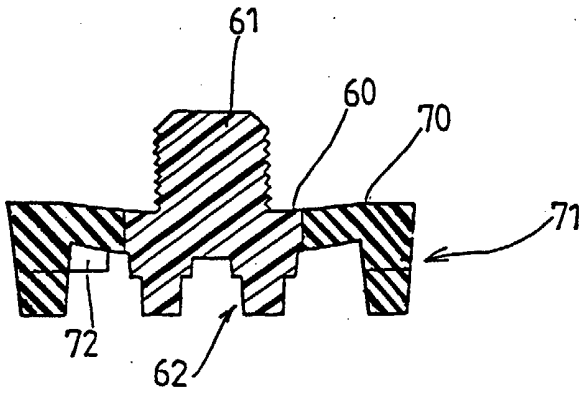

FIG. 5

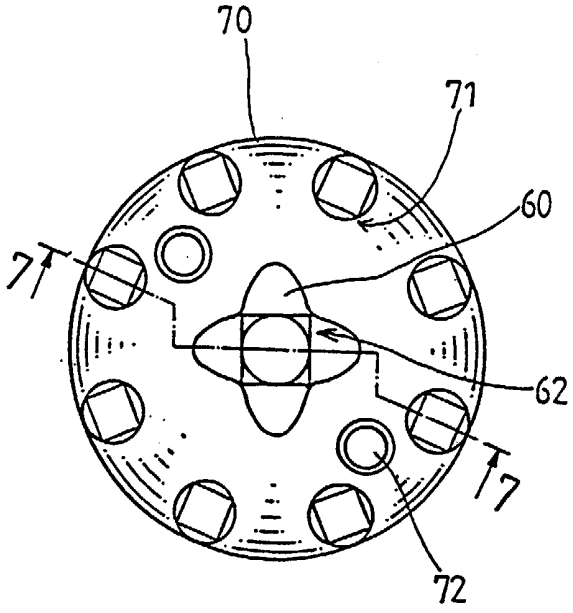

FIG. 6

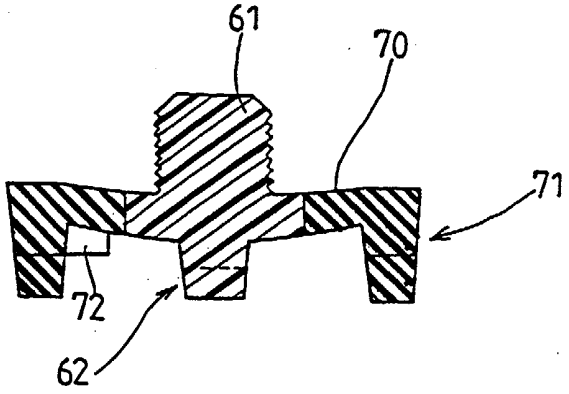

FIG. 7

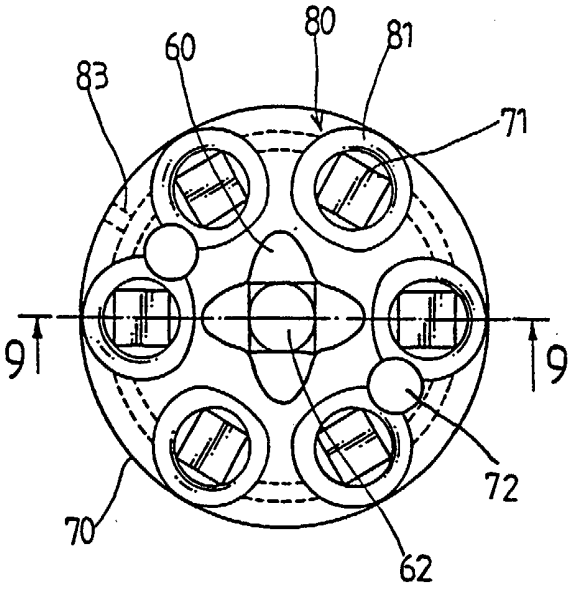

FIG. 8

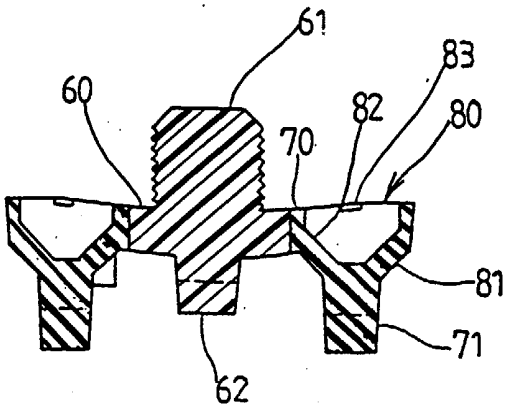

FIG. 9

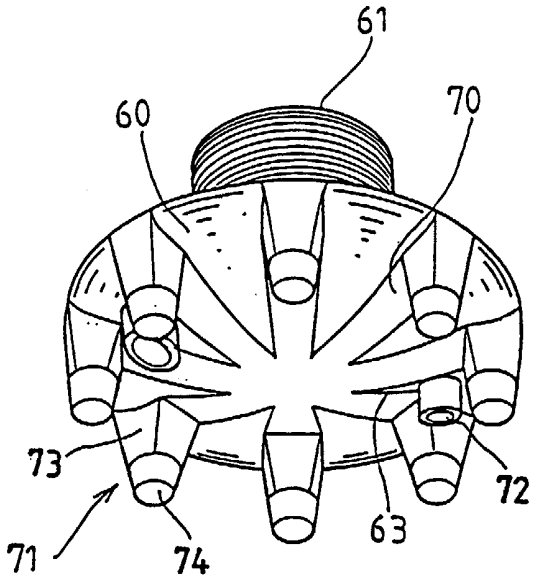

FIG. 10

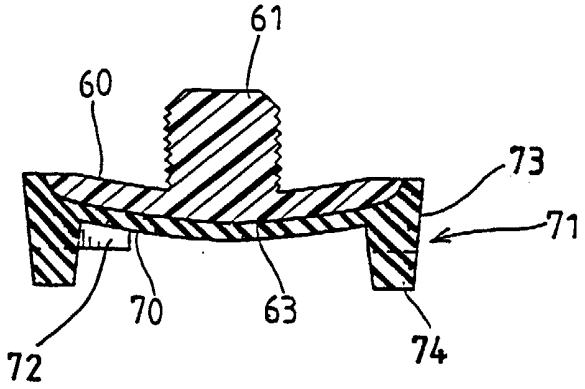

FIG. 11

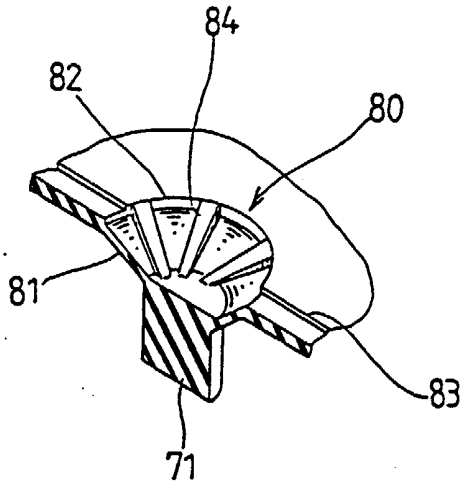

FIG. 12

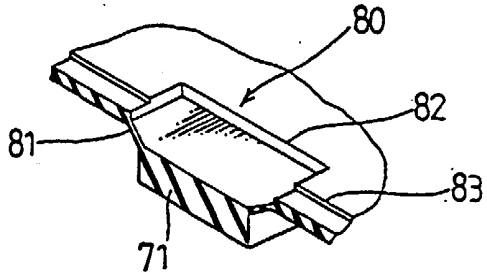

FIG. 13

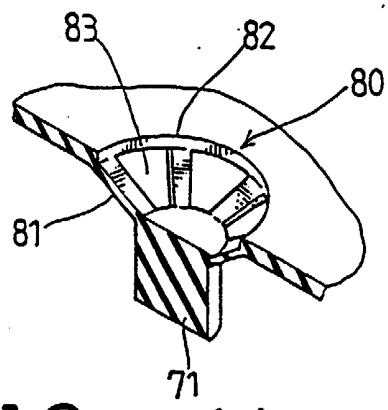

FIG. 14

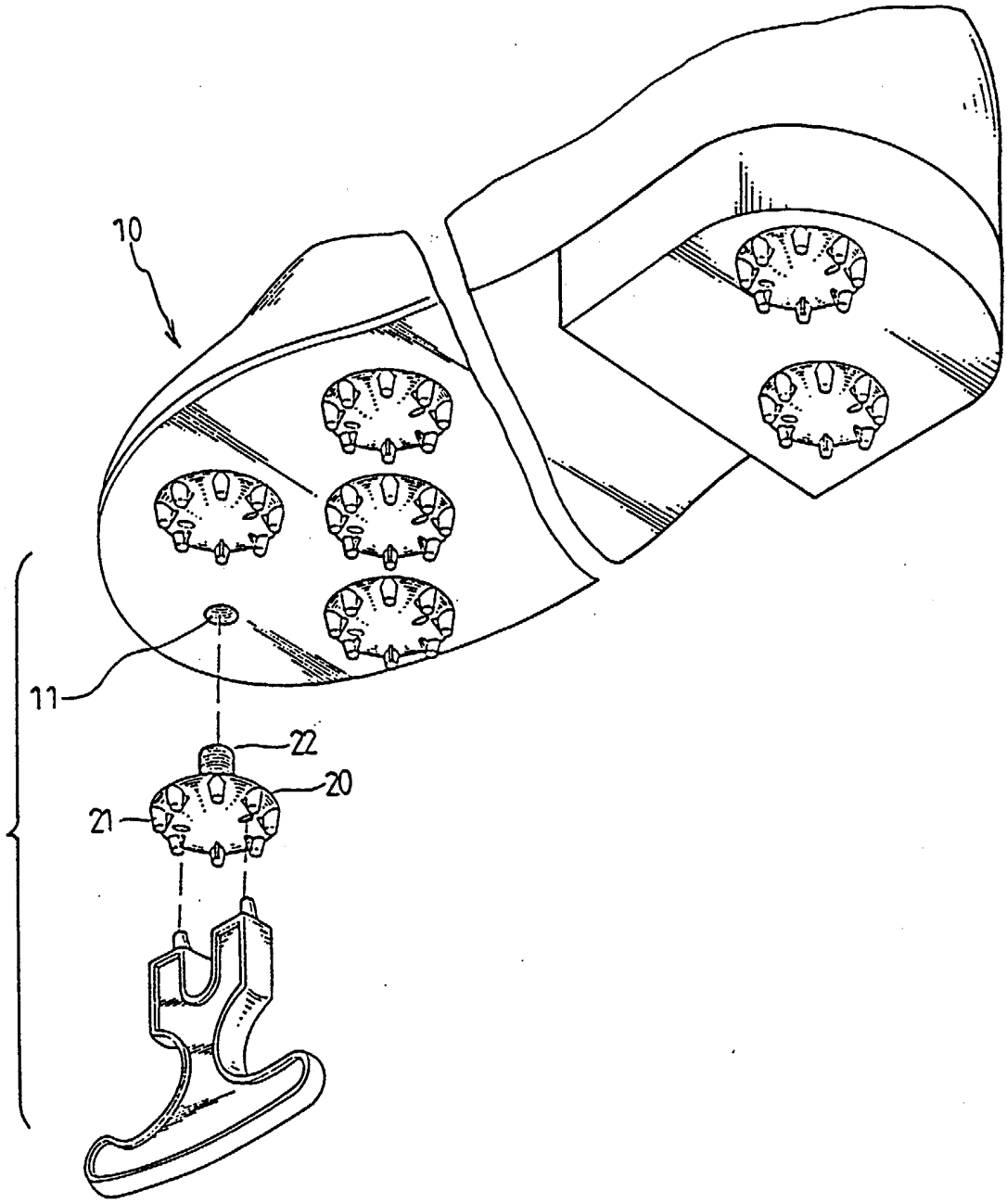

FIG. 15
PRIOR ART

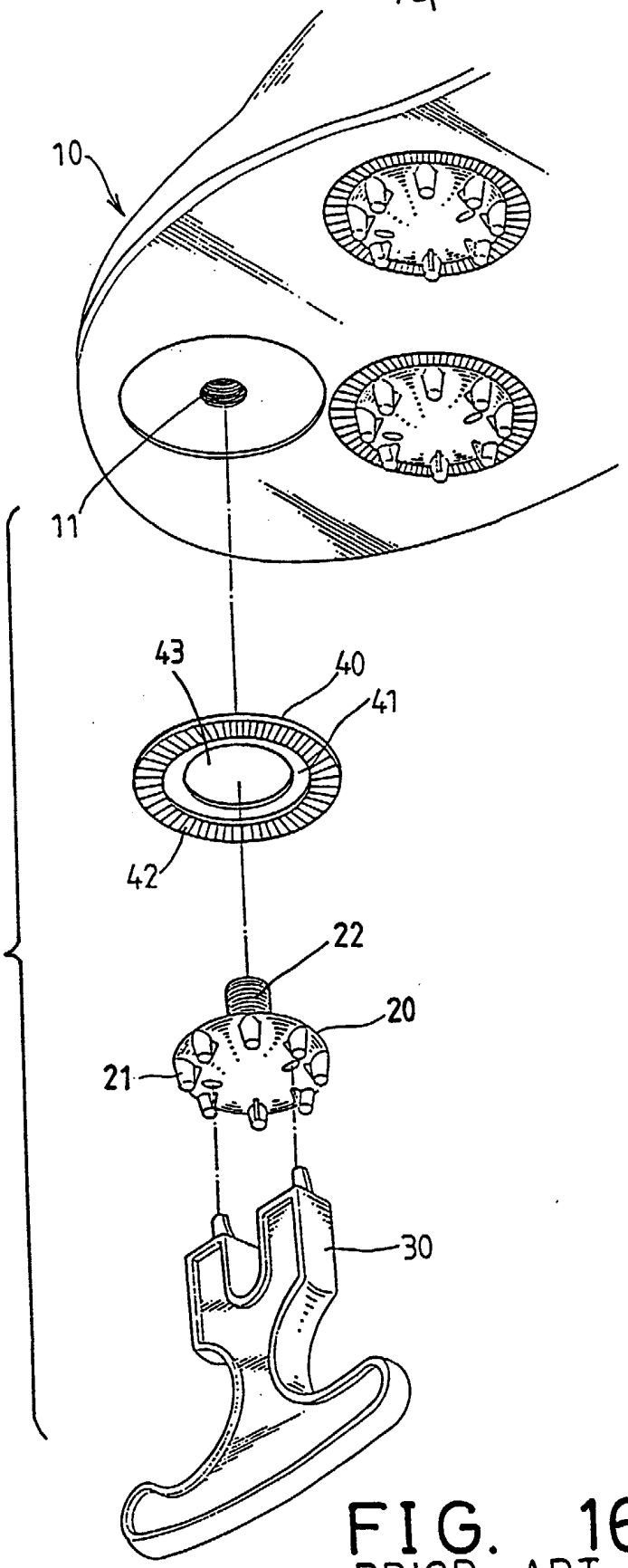

FIG. 16
PRIOR ART

ANTISLIP DEVICE FOR SHOES

The invention relates to an antislip device for shoes.

Typically, antislip devices may be attached to the bottom of the shoe soles for antislip purposes. For example, the typical golf shoes comprise one or more metal spikes or the like attached to the shoe soles thereof. Some of the of the golf shoes include a number of rubber spikes or the like attached to the bottom thereof. However, the rubber spikes are resilient and may not be solidly secured to the shoes and may be easily damaged or worn out.

FIG. 15 illustrates a typical antislip device 20 to be attached to the golf shoe 10 and including an upward extending bolt 22 for threading to the screw hole 11 of the shoe 10 and including one or more spikes 21 extended downwardly therefrom. The antislip device is made of relatively harder material, such as metal or plastic material and has bad resilience. FIG. 16 illustrates the other typical antislip device 20 for attaching to the golf shoe 10 with a tool 30. A ring 40 is further provided and includes a peripheral flange 41 formed or provided around a bore 43 for engaging with the upper peripheral portion of the antislip device 20. The ring 40 includes a number of teeth or bulges 42 extended downwardly therefrom for engaging with the ground and for increasing the antislip effect to the

shoes. The antislip device and the ring are all made of relatively harder material, such as metal or plastic material and has bad resilience.

It is accordingly an object of the present invention to provide an antislip device including a stronger portion for securing to the shoes and including a resilient portion for providing a better resilience to the shoes and/or to the antislip device.

According to the present invention there is provided an antislip device for attaching to a shoe, the antislip device comprising:-

a) a block including an upper portion having a fastening device provided thereon for fastening to the shoe, and including an outer peripheral portion, and

b) a peripheral skirt attached to the outer peripheral portion of the block and including at least one first spike and including a resilience greater than that of the block for providing a better resilience to the antislip device. The block is relatively harder or stronger than the the peripheral skirt for allowing the block to be solidly secured to the shoe sole.

The first spike includes an end portion, and a base portion having a diameter greater than that of the end portion of the first spike for increasing the strength of the first spikes. The end portion of the first spike is cylindrical and the base portion of the first spike includes a frustum-shaped cross section.

The block includes a lower portion having at least one second spike. The antislip device may include one or more openings for receiving the driving tool and for securing the antislip device onto the shoe.

One or more air cushioning devices are further provided in the peripheral skirt and formed by cup members and preferably provided above the first spikes.

The peripheral skirt includes at least one air passage formed therein and communicating with the chamber of the cup member for allowing air to flow into and out of the chamber of the cup member. The cup member includes at least one reinforcing rib provided therein for reinforcing the cup member.

FIG. 1 is an exploded view illustrating an attachment of an antislip device onto a shoe sole;

FIG. 2 is a bottom perspective view of the antislip device;

FIG. 3 is a bottom plane view of the antislip device;

FIG. 4 is a cross sectional view taken along lines 4-4 of FIG. 3;

FIG. 5 is a cross sectional view similar to FIG. 4, illustrating the other application of the antislip device;

FIGS. 6 and 8 are bottom plane views similar to FIG. 3, illustrating the further applications of the antislip devices;

FIGS. 7 and 9 are cross sectional views taken along lines 7-7 and 9-9 of FIGS. 6 and 8 respectively;

FIG. 10 is a bottom perspective view similar to FIG. 2, illustrating a still further application of the antislip devices;

FIG. 11 is a cross sectional view of the antislip device as shown in FIG. 10;

FIGS. 12, 13, 14 are partial upper perspective views illustrating the still other applications of the antislip device;

FIGS. 15 and 16 are exploded views illustrating two typical antislip devices for the shoes.

Referring to FIGS. 1-4, an antislip device comprises a block 60 including a bolt 61 for threading and securing to the screw hole 11 of the typical shoe 10 and including one or more spikes 62. The block 60 may include four spikes 62 (FIGS. 1-5), one spike 62 (FIGS. 6-9), or even no spike 62 (FIGS. 10, 11). The block 60 is made of relatively harder material, such as metal or plastic material for forming the bolt 61 that is strong enough to be solidly secured to the shoe 10. It is preferable that the spikes 62 each includes an end portion having a square cross section and each includes a cylindrical base portion 67 having a greater outer diameter than that of the body of the spikes 62 for increasing the strength of the spikes 62. The decreased length of the square end portions of the

spikes 62 may be used for determining whether the spikes 62 have been worn out or not.

The antislip device further includes a peripheral skirt 70 provided around or extended radially outwardly from the outer peripheral portion of the block 60 and secured to the outer peripheral portion of the block 60 by such as the molding or mold injection processes. The peripheral skirt 70 is made of such as the rubber materials which has a strength less than that of the block 60 but has a resilience greater than that of the block 60, such that the rubber peripheral skirt 70 may provide a great resilience to the antislip device. The block 60 may be formed in one mold device with the harder or stronger plastic material, and the rubber peripheral skirt 70 may then be formed with another mold device before the plastic material for forming the block 60 is hardened or cured, such that the plastic block 60 and the rubber peripheral skirt 70 may be formed and secured together with the molding process without any further adhesive materials or welding processes. The block 60 and the peripheral skirt 70 may be formed with different colors or with transparent or semi-transparent materials.

The peripheral skirt 70 includes one or more spikes 71 extended downward therefrom. It is preferable that the spikes 71 each includes a base portion 73 having a square or frustum-shaped cross section (FIGS.

2-5, and 10, 11), and each includes a cylindrical end portion 74 having a smaller outer diameter than that of the base portion 73 of the spikes 71 such that the strength of the spikes 71 may be increased. The decreased length of the end portions 74 of the spikes 71 may be used for determining whether the spikes 71 have been worn out or not and whether the antislip device is required to be changed or not.

The peripheral skirt 70 may further include one or more air cushioning devices 80 formed above the spikes 71 respectively and having a chamber 82 formed therein or defined with a cup member 81. The cup member 81 may be a frustum-shape (FIG. 2), or a conic shape (FIGS. 12, 13), or a rectangular shape (FIG. 14) or the like, and may include one or more reinforcing ribs 84 (FIG. 12) provided thereon. The chamber 82 of the cup member 81 of the air cushioning device 80 may be enclosed or may be formed as an enclosed air envelope by the cup member 81 and the shoe sole 10 when the peripheral skirt 70 of the antislip device is secured to the shoe sole 10. The peripheral skirt 70 of the antislip device may further include one or more air passages 83 (FIGS. 4, 12-14) formed therein and communicating with the chamber 82 for allowing the air to flow in or out of the chamber 82 of the cup member 81 and for forming an excellent air cushioning structure. The cup member 81 may be squeezed or depressed by the spikes 71.

As shown in FIGS. 1-11, the antislip device includes one or more socket openings or engaging openings 72 provided therein for receiving or for engaging with the driving tools 30 which may be used to drive or attach the antislip device onto the shoe sole 10. The socket openings or the engaging openings 72 may be formed in the block 60 and/or the peripheral skirt 70. As shown in FIGS. 10, 11, the block 60 may include one or more recesses 63 formed in the bottom thereof, and the peripheral skirt 70 may include an inner portion engaged in the recesses 63 of the block 60 for allowing the peripheral skirt 70 to be solidly attached to the bottom of the block 60.

The most important characteristic of the antislip device is that the antislip device includes a block 60 made of harder material, and a peripheral skirt 70 made of resilient material and for providing a suitable resilience to the antislip device. The block 60 may include one or more spikes 62, and the peripheral skirt 70 may also include one or more spikes 71 extended downward therefrom. In addition, the peripheral skirt 70 may further include an air cushioning device 80 formed or provided therein, and preferably provided above each of the spikes 71 for further increasing the resilience or the cushioning effect of the spikes 71.

CLAIMS:-

1. An antislip device for attaching to a shoe, said antislip device comprising:

a) a block including an upper portion having a fastening device provided thereon for fastening to the shoe, and including an outer peripheral portion, and

b) a peripheral skirt attached to said outer peripheral portion of said block and extended radially outward from said outer peripheral portion of said block, said peripheral skirt including at least one first spike extended downward therefrom, said peripheral skirt including a resilience greater than that of said block.

2. An antislip device as claimed in claim 1, wherein said at least one first spike includes an end portion, and a base portion having a diameter greater than that of said end portion of said at least one first spike.

3. An antislip device as claimed in claim 2, wherein said end portion of said at least one first spike is cylindrical and said base portion of said at least one first spike includes a frustum-shaped cross section.

4. An antislip device as claimed in claim 1, wherein said block includes a lower portion having at least one second spike extended downward therefrom.

5. An antislip device as claimed in claim 1

further comprising at least one air cushioning device provided in said peripheral skirt.

6. An antislip device as claimed in claim 5, wherein said peripheral skirt includes a cup member provided therein and having a chamber formed in said cup member for forming said at least one air cushioning device.

7. An antislip device as claimed in claim 6, wherein said peripheral skirt includes at least one air passage formed therein and communicating with said chamber of said cup member for allowing air to flow into and out of said chamber of said cup member.

8. An antislip device as claimed in claim 6, wherein said cup member includes at least one reinforcing rib provided therein.

9. An antislip device as claimed in claim 1 further comprising at least one engaging opening formed therein.

10. An antislip device substantially as herein described with reference to FIGS. 1-14 of the accompanying drawings.

Amendments to the claims have been filed as follows

Claims:-

1. An anti-slip device for attachment to a shoe, the anti-slip device comprising:-

a) a block comprising a body portion and a threaded portion extending upwardly from the body portion for fastening to the shoe, and

b) a peripheral skirt bonded to the periphery of the body portion of the block and extending radially outwardly therefrom, the peripheral skirt including at least one downwardly extending spike and being formed of a material which has a resilience greater than that of the material from which the block is formed.

2. An anti-slip device as claimed in Claim 1, in which the or each spike extending downwardly from the peripheral skirt has an end portion and a base portion having a diameter greater than that of the end portion.

3. An anti-slip device as claimed in Claim 2, in which the end portion of the or each spike is cylindrical while the base portion is of frustum shape in cross-section.

4. An anti-slip device as claimed in any one of the preceding claims, in which the body portion of the block includes one or more downwardly extending spikes.

5. An anti-slip device as claimed in any one of the preceding claims, in which the peripheral skirt includes air cushioning devices.

6. An anti-slip device as claimed in Claim 5, in which the air cushioning devices are formed by cup members located above the spikes extending downwardly from the peripheral skirt.

7. An anti-slip device as claimed in Claim 6, in which each cup member includes a chamber which communicates with an air passage formed in the peripheral skirt to allow air to flow into and out of the chamber.

8. An anti-slip device as claimed in Claim 7, in which each cup member includes at least one reinforcing rib.

9. An anti-slip device as claimed in Claim 1 and substantially as hereinbefore described with reference to and as shown in Figures 1 to 14 of the accompanying drawings.

Application No: GB 0022244.8
Claims searched: 1-10
Examiner: Dr Paul R Minton
Date of search: 11 December 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): A3B.

Int Cl (Ed.7): A43B 13/24, 13/26; A43C 13/04, 15/16.

Other: ONLINE: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X,Y	GB 2341783 (SHIEH) and LeaderSpikes at www.lawia.com/html/leaderspikes.html as retrieved on 05.12.00. Product made publically available on the file of GB9820853.1 on 29.03.00.	X:1,2,9 Y:4
Y	GB 1263960 A (DASSLER). See particularly Figure 3.	4
X,Y	US 6006454 A (SITZLER). See particularly lines 2-20, column 3 & lines 8-12, column 4 and Figures.	X:1,2 Y:4

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.