A needle spike is secured in an axial hole in an externally threaded cylindrical support member having a collar by means of which it is screwed into an insert in the sole of a sports shoe.

3 Claims, 7 Drawing Figures
SPORTS SHOE SPIKES

The invention relates to spikes for sports shoes, such as track shoes, golf shoes and cricket shoes, that sportsmen use so as to improve their grip on the track or sports field.

The spikes used at present are formed in a single piece, with a pointed end extended by a threaded stem. In most cases, the threaded stem and the spike are separated by a protruding flange of a selected shape such as circular or hexagonal, or sometimes by an integral washer provided with holes adapted to cooperate with a spanner or special tool for screwing the spike into a tapped or non-tapped insert fixed in the sole of the sports shoe.

Different types of needle spikes, with variable needle length and section are available to the user according to the type of sport in question, and the nature of the track or sports field.

Up to recent years, tracks and sports fields were generally formed of compacted earth, grass or cinders. The relatively friable nature of these grounds enabled the use of spikes with a large diameter, which consequently did not need to be in a very strong material.

Modern tracks are more frequently formed by synthetic coatings composed of different materials coated with elastic products. These much more compact coatings require a decrease in the diameter of the spikes to avoid useless efforts on the part of the athlete at the moment of penetration and extraction of the spikes in the track. So as not to damage these tracks, it is also necessary to adapt the diameter and the shape of the spikes so that the holes created by penetration of the spikes in the material close up a short time afterwards, and so that there is no ripping off of the coating.

Whilst it is necessary to reduce the section of the needle spikes as much as possible, it is also necessary that the latter remain highly resistant to flexion, shocks and wear. The small section and the required resistance necessitate the use of a high strength metal for the manufacture of these needle spikes. Manufacture in such a metal of spikes in a single piece becomes very difficult since it is not possible to provide, in economically acceptable conditions, the threading on the stems of the spikes and the means required to engage this threading in the shoe.

The present invention aims to palliate these drawbacks and, for this purpose, proposes to provide a spike for sports shoes whose needle spike, with a very good resistance to flexion, shock and wear, can be conveniently fixed to the shoe.

A second aim of the invention is to provide on a non-pointed end of the spike means for efficiently fixing it onto the shoe.

According to the invention, a spike for sports shoes comprises an externally threaded substantially cylindrical support member having an axial hole, a hard metallic needle spike having a pointed end and a blunt end, the needle spike being securable in said axial hole with said pointed end protruding from one end of the support member, and means on said one end of the support member for engaging with a tool for screwing the support member into a threaded insert in a shoe.

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is an axial cross-sectional view of a spike according to the invention;
FIG. 2 is an elevational view of the spike of FIG. 1;
FIGS. 3 and 3a are elevational views of two variants of spikes according to the invention;
FIG. 4 is a view in axial cross section of another embodiment of spike according to the invention;
FIG. 5 is an elevational view of the spike shown in FIG. 4; and
FIG. 6 is an elevational view of a variant spike according to the invention.

Fig. 1 shows a spike formed in two parts, namely a support 1 and a needle spike 2.

The support 1 has a blind axial hole 3 with a conical bottom 4. The external face of the support 1 has, on its lower cylindrical part, a screw thread 5 and, at its upper part, a collar 1a having a screw-driving element, such as a flat 6 (FIG. 2), polygonal faces (FIG. 3) or an incorporated washer 16 having holes 17 (FIG. 3a). This collar 1a holds the needle spike 2 when the support 1 is screwed by means of a tool so as to engage the thread 5 in a tapped hole 8 pierced through an insert 9 fixed to the sole of a shoe. The support 1 can be provided in various easily worked materials such as steel, zinc alloy, brass, aluminum or a suitable synthetic plastics material.

The needle spike 2 is shaped to have an external pointed end 10 and an internal cylindrical end 11. It is made in a material having a good resistance to flexion, to shocks and wear, such as a treated highresistance steel or in duraluminum or titanium. This enables the provision of needle spikes of a diameter less than 4 mm and more commonly comprised between 1 and 3 mm.

In the case of FIG. 1 the internal end 11 of the needle spike is force-fitted into the hole 3 of the support 1. This manner of fixation is however not limiting; it would be possible to make this joint by any other means such as welding, milling, gluing, threading or by casting the support 1 about the needle spike 2.

FIG. 4 shows another embodiment of spike according to the invention. The lower end 11 of the needle spike has a head 13 forming a transversal flange and the support 1 is pierced with an axial through bore 3'.

In this case, upon mounting, the support 1 is passed about the needle spike 2, then screwed into a blind tapped hole 8' of the insert 9 until the lower face 14 of the support 1 presses the head 13 against the bottom 15 of the hole 8 so as to hold the spike in position.

FIGS. 4 to 6 show the possibility of using curved needle spikes and also enable the possibility of rapidly changing the type of needle spikes on the shoes, without having to use a new support.

The resistance to flexion of the described spikes is appreciably improved and they penetrate with a minimum of resistance into both cinder tracks and tracks with a coating comprising an elastic material. Moreover, the spikes have a good resistance to shocks and wear.

I claim:
1. A spike assembly for sport shoes comprising: a support member having an externally threaded cylindrical portion; means defining a through bore through said cylindrical portion of said support member; a spike inserted into said through bore and having a flange having a transverse width larger than the width of said through bore on an end of said spike and contacting an end portion of said cylindrical portion; an insert insert-
3,775,874

3. Able in a shoe and having means therein defining a threaded blind bore having threaded therein said thread cylindrical portion with said flange of said spike disposed contacting said end portion of said cylindrical portion; and said flange having an exterior planar bearing surface bearing against the blind end of said blind bore.

2. A spike assembly for sport shoes comprising: a support member having an externally threaded cylindrical portion; means defining a through bore through said cylindrical portion of said support member; a spike inserted into said through bore and having a flange having a transverse width larger than the width of said through bore on an end of said spike and contacting an end portion of said cylindrical portion; an insert insertable in a shoe and having means therein defining a threaded blind bore having threaded therein said threaded cylindrical portion with said flange of said spike disposed contacting said end portion of said cylindrical portion; and said support member having means thereon defining a tool engaging portion having a polygonal portion engagable with a tool for screwing said threaded cylindrical portion into said threaded blind bore.

3. A spike assembly for sport shoes comprising: a support member having an externally threaded cylindrical portion; means defining a through bore through said cylindrical portion of said support member; a spike inserted into said through bore and having a flange having a transverse width of said through bore on an end of said spike and contacting an end portion of said cylindrical portion; an insert insertable in a shoe and having means therein defining a threaded blind bore having threaded therein said threaded cylindrical portion with said flange of said spike disposed contacting said end portion of said cylindrical portion; and said support member having means thereon defining a tool engaging portion having at least two linear portions engagable with a tool for screwing said threaded cylindrical portion into said threaded blind bore.

* * * *