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(56) Related Art

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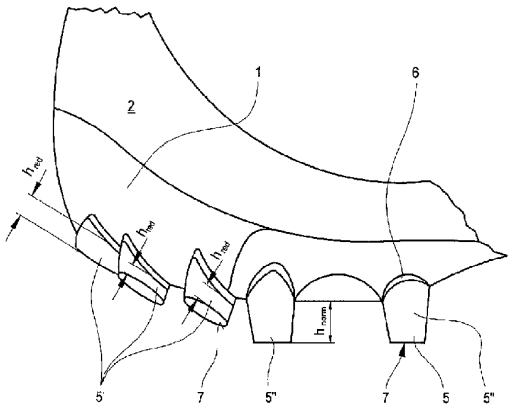
[Fortsetzung auf der nächsten Seite]

(54) Title: OUTSOLE FOR SPORTS SHOES

(54) Bezeichnung: LAUFSOHLE FÜR SPORTSCHUHE



(57) Abstract: The invention relates to an outsole (1) for sports shoes (2) comprising nock-type elements arranged in the front sole area (3) and heel area (4), said nock-type elements extending in a conically tapered manner from the base (6) thereof to the contact surface (7). The aim of the invention is to improve said outsole, in order to enable improved contact of the feet when they are placed on the ground, even when the ground is moderately hard. This is achieved by reducing the height (h_{red}) of at least one nock-type element (5') in the sole edge area (12) of the heel area (4) in relation to the average height (h_{norm}) of the other nock-type elements (5'') in said area.

[Fortsetzung auf der nächsten Seite]

WO 02/098253 A1

OAPI-Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Veröffentlicht:
— *mit internationalem Recherchenbericht*

Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

(57) Zusammenfassung: Die Erfindung betrifft eine Laufsohle (1) für Sportschuhe (2) mit im Vordesohlenbereich (3) und im Fersenbereich (4) angeformten Nocken (5), die von ihrer Basis (6) zur Auftrittsfläche (7) hin konisch verjüngt verlaufen. Eine derartige Laufsohle soll so verbessert werden, dass diese auch bei mittelhartem Boden ein besseres Eingleiten des Fusses beim Aufsetzen auf den Boden ermöglicht. Dies wird dadurch erreicht, dass die Höhe (h_{red}) mindestens einer Nocke (5') im Sohlenrandbereich (12) des Fersenbereichs (4) gegenüber der durchschnittlichen Höhe (h_{norm}) der anderen Nocken (5'') in diesem Bereich reduziert ist.

OUTSOLE FOR SPORTS SHOES

FIELD OF THE INVENTION

The invention relates to an outsole for sports shoes, in particular football shoes, with studs tapering conically from their base to their contact surface moulded in the front sole region and heel region.

BACKGROUND OF THE INVENTION

An outsole of the kind described is known from DE 37 03 932 A1. Here, studs which protrude normally from the base geometry of the sole are moulded to the sole by a common injection moulding process through which the sole is also manufactured. With such studs the result is a sports shoe which exhibits good gripping properties in particular on hard ground.

A sports shoe is known from DE 24 54 241 A which exhibits so-called sliding prevention profiling in the heel region. For this, provision is made for the sole of the shoe curving upwards around the heel to be provided with sliding prevention studs which are reduced in height in relation to the height of the studs. The result of this is that the shoe has a better grip in the ground when the wearer of the shoe wishes or has to take an extended stride at full stretch.

US 3,988,840 discloses a sole for a sports shoe which is supposed to stand out through particularly good traction on the ground. Here, provision is made for the sole edge region – extending around the entire circumference of the sole – to be provided with studs all of which are reduced in height relative to the studs located in the "inner region" of the sole.

A sports shoe is known from US 4,327,503 the sole of which is provided with studs. Here, provision is made for the use of both studs with a greater height and studs with a reduced height.

Here, it has proved to be disadvantageous that above all with moderately hard ground, for example superficially frozen ground, contact between the foot and the ground is undesirably hard. In addition, with such ground stability is reduced since a "stilt effect" is produced in that the surface supporting the foot lies at least the height of the studs above the ground.

Therefore, it is desirable to provide a sports shoe of the kind known previously such that the foot slides in better on contact with the ground even with

moderately hard ground. In addition, the "stilt effect" is to be reduced so that more stable contact between the foot and the ground is possible.

SUMMARY OF THE INVENTION

A first aspect of the present invention provides an outsole for sports shoes, in particular football shoes, with studs tapering conically from their base to their contact surface moulded in the front sole region and heel region, wherein the height of at least one stud in the sole edge region of the heel region is reduced compared to the average height of the other studs in this region, all the studs in this region lying in an angular range of 30° to 135°, preferably 60° to 120° of an imaginary circle defining the end region of the heel region, being reduced in height and the studs reduced in height facing the ground when the sports shoe is standing on the ground.

As a result, in particular the shoe slides in better on the ground; in addition, the "stilt effect" is reduced.

Here, advantageously, the studs which are reduced in height exhibit a maximum of 60%, preferably a maximum of 30% of the average height of the studs which have not been reduced in height. The base of the moulded studs can have an elongated cross-section, in particular a cross-section similar to the shape of an ellipse.

Preferred features of this aspect may be as defined in claims 4 to 12 inclusive annexed hereto, the subject matter of these claims being made a part of the disclosure of this specification by this reference thereto.

The following advantages are obtained with the proposed design of the outsole of a sports shoe – in particular when used on moderately hard ground:

- When the foot makes contact with the ground, the heel region of the shoe slides in better on the ground.
- The "stilt effect" is reduced, resulting in improved stability.
- Contact with the ground can be controlled better.
- Unnatural or harmful levers, specifically when the shoe comes into contact with the ground, are avoided by the studs which are reduced in height so that the foot can roll on the ground better without stability being reduced. This allows more natural rolling of the foot on the ground.

2002215867 26 Sep 2006

- Sliding contact is possible so that the foot is exposed to reduced loading.

BRIEF DESCRIPTION OF THE DRAWINGS

It will be convenient to further describe the invention with reference to the accompanying drawings which illustrate a preferred embodiment of the present invention. Other embodiments are possible, and consequently, the particularity of the accompanying drawings is not understood as superseding the generality of the preceding invention.

Fig. 1 shows a diagrammatic side view of a sports shoe.

Fig. 2 shows an enlarged detail of the side view of the heel region of this sports shoe.

Fig. 3 shows a plan view of the outsole (from below).

DETAILED DESCRIPTION OF THE EMBODIMENTS

Fig. 1 shows a left sports shoe 2 in a side view. It has an outsole 1 on the underside of which are arranged a plurality of studs 5, 5', 5", 5"'. The studs 5 to 5"' are injection moulded in a common injection moulding process when the outside 1 is injection moulded, i.e. moulded to the outsole 1.

The studs 5, 5', 5", 5"' or a part thereof are arranged both in the front sole region 3 and in the heel region 4 of the outsole 1. They exhibit a base 6 from which they taper conically to the stud contact surface 7.

In cross-section the studs 5, 5', 5", 5"', like the stud base 6, have an elongated shape, preferably an elliptical or roughly elliptical shape, as can be seen in fig. 3. In the front sole region 3 studs 5 are arranged along the sole edge region 12, the longitudinal axis 9 of which runs in the direction of the sole edge region 12. In contrast, in the heel region 4 the studs 5 are arranged in the sole edge region 12 so that the longitudinal axis

9 of the studs runs at least roughly transversely to the direction of the sole edge region 12.

The outsole 1, which overall exhibits a sole width 11, is also provided with inner studs 5''' in the front sole region 3. These are surrounded by the studs 5 in the sole edge region 12 and in the embodiment example arranged so that their longitudinal axis 9 runs in the direction of the longitudinal axis 10 of the sole.

As can be seen best in fig. 2, according to the invention some studs 5' in the sole edge region 12 of the heel region 4 have a reduced height h_{red} compared with the average height h_{norm} of the other studs 5''. In the embodiment example, three studs 5' are reduced in their height.

If a bounding circle 8 is defined for the end region of the heel region 4 (see fig. 3), it can be said that all the studs 5' inside an angle range α, which preferably lies between 60° and 120°, are reduced in height.

Here, the height of the studs 5' is reduced so that they only exhibit a maximum of 30% of the height exhibited on average by the remaining studs 5'' of normal height.

Here, the height of the studs 5 in the sole edge region 12 of the front sole region 3 is less than the height of the studs 5'' not reduced in height in the sole edge region 12 of the heel region 4.

The inner studs 5''' in the front sole region 3 exhibit a stud height which is less than the height of the studs 5 not reduced in height in the sole edge region 12.

The proposed design ensures that the contact properties of a sports shoe, in particular a football shoe, are improved specifically on moderately hard ground.

List of References:

1	Outsole
2	Sports shoe
3	Front sole region
4	Heel region
5	Stud
5'	Stud with reduced height
5"	Stud with normal height
5"'	Inner studs
6	Stud base
7	Stud contact surface
8	Bounding circle of heel region
9	Stud longitudinal axis
10	Sole longitudinal axis
11	Sole width
12	Sole edge region

h_{norm}	Normal average stud height
h_{red}	Reduced stud height
α	Angle range

2002215867 26 Sep 2006

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Outsole for sports shoes, in particular football shoes, with studs tapering conically from their base to their contact surface moulded in the front sole region and heel region, wherein the height of at least one stud in the sole edge region of the heel region is reduced compared to the average height of the other studs in this region, all the studs in this region, lying in an angle range of 30° to 135°, preferably 60° to 120° of an imaginary circle defining the end region of the heel region, being reduced in height and the studs which are reduced in height facing the ground when the sports shoe stands on the ground.

2. Outsole according to claim 1, wherein the studs which are reduced in height exhibit a maximum of 60%, preferably a maximum of 30% of the average height of the studs which are not reduced in height.

3. Outsole according to claim 1 or 2, wherein the base of the moulded studs exhibits an elongated cross-section, in particular a cross-section similar to the shape of an ellipse.

4. Outsole according to one of claims 1 to 3, wherein the longitudinal axis of the studs moulded in the sole edge region in the front sole region runs in the direction of the sole edge.

5. Outsole according to one of claims 1 to 4, wherein the longitudinal axis of the studs moulded in the sole edge region in the heel region runs transversely to the direction of the sole edge.

6. Outsole according to one of claims 1 to 5, wherein the longitudinal axis of the base of one or more of the inner studs surrounded by the studs in the sole edge region runs in the direction of the sole longitudinal axis.

7. Outsole according to one of claims 1 to 6, wherein the height of the studs in the sole edge region of the front sole region is less than the height of the studs which are not reduced in height in the sole edge region of the heel region.

8. Outsole according to one of claims 1 to 7, wherein in the front sole region there are inner studs which are surrounded by studs in the sole edge region, the height of the inner studs being less than the height of the studs in the sole edge region.

9. Outsole according to claim 8, wherein in the middle front sole region three or more studs are arranged next to one another over the sole width.

10. Outsole according to claim 8 or 9, wherein the studs arranged next to one another are arranged offset in relation to one another relative to the sole longitudinal axis.

11. Outsole according to one of claims 1 to 10, wherein the stud contact surface of the studs runs from the sole edge to the sole longitudinal axis with decreasing stud height.

12. Outsole substantially as hereinbefore described with reference to an embodiment shown in the accompanying figures nos. 1 – 3.

DATED this 18th day of September 2006
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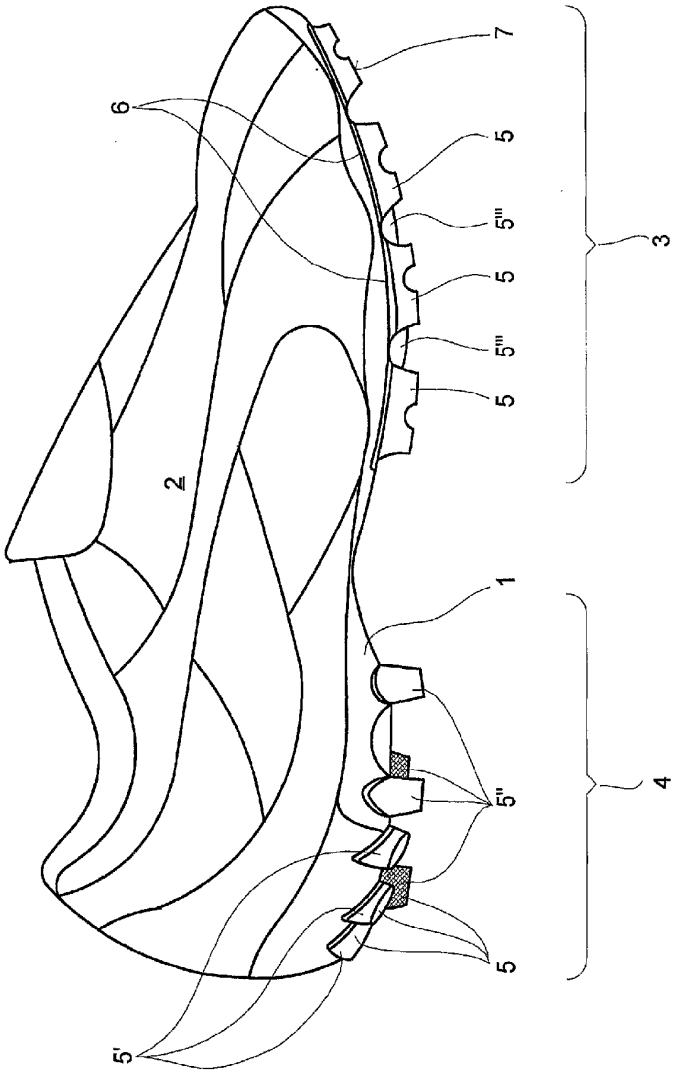

Fig. 1

ERSATZBLATT (REGEL 26)

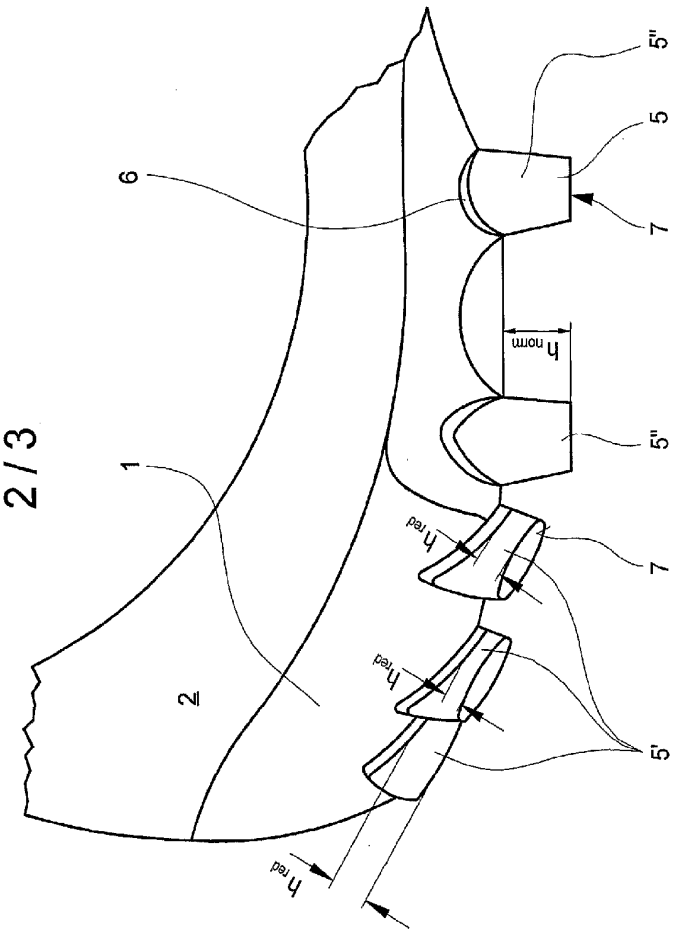

Fig. 2

ERSATZBLATT (REGEL 26)

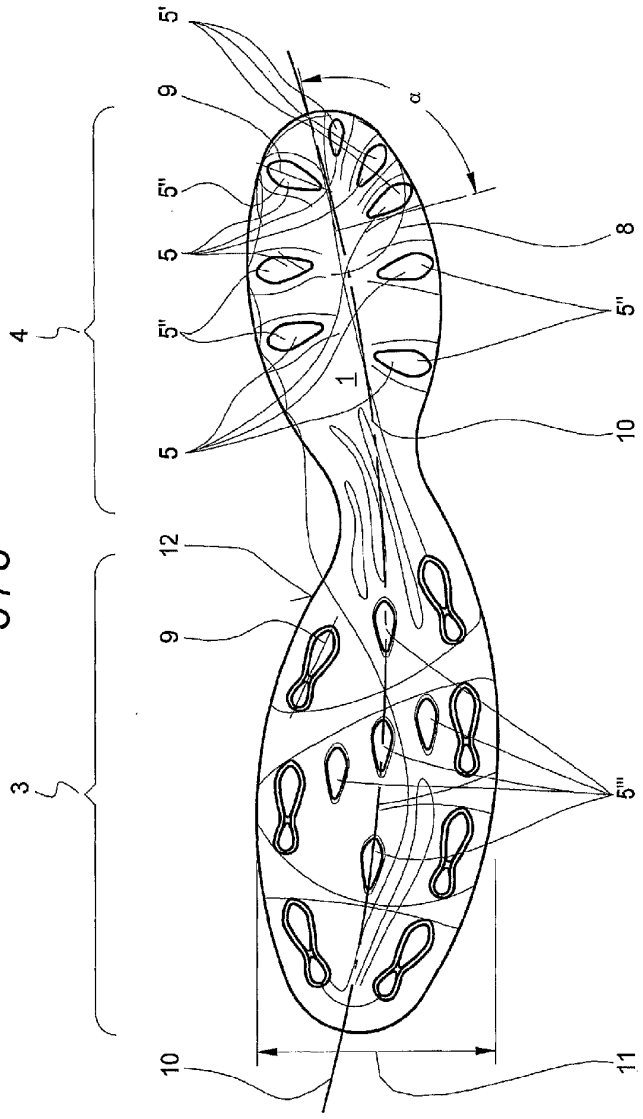

Fig. 3

3 / 3