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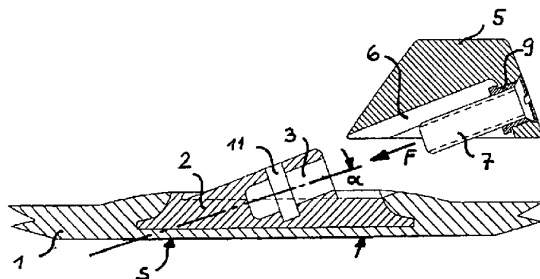
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[Fortsetzung auf der nächsten Seite]

(54) Title: SPORTS SHOE

(54) Bezeichnung: SCHUH FÜR SPORTZWECKE



(57) Abstract: The invention relates to a shoe, especially a sports shoe. Said shoe has a sole (1) for receiving one or more studs (5) by means of a moulded body (2) which is arranged on the sole at an angle (α) of between 15° and 25°, preferably 18°, to the plane of the sole (S) and which has an opening (3) for receiving a securing device (4) which is located on the stud. Said stud also has a recess which is complementary to the cross-section of the moulded body. The moulded body and the stud are connected by placing the stud on the moulded body and activating the securing device, so that the stud is compulsorily guided into the locking position or out into the unlocking position.

(57) Zusammenfassung: Ein Schuh, insbesondere für Sportzwecke, weist eine Sohle (1) zur Aufnahme eines oder mehrerer Stollen (5) auf. Diese Aufnahme erfolgt über einen an der Sohle angeordneten Formkörper (2), der in einem Winkel (α) zwischen 15° und 25°, bevorzugt 18° zur Sohlelebene (S) angeordnet ist und eine Öffnung (3) zur Aufnahme einer am Stollen angeordneten Sicherung (4) aufweist. Der Stollen weist ausserdem ein komplementär zum Querschnitt des Formkörpers ausgebildete Ausnehmung auf. Die Kupplung zwischen Formkörper und Stollen erfolgt durch Aufsetzen des Stollens auf den Formkörper und durch Betätigung der Sicherung, so dass der Stollen zwangsläufig in die Verriegelungslage eingeführt oder in die Entriegelungslage herausgeführt wird.

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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.

Abstract

The invention relates to a shoe, especially a sports shoe. Said shoe has a sole (1) for receiving one or more studs (5) by means of a moulded body (2) which is arranged on the sole at an angle (α) of between 15° and 25° , preferably 18° , to the plane of the sole (S) and which has an opening (3) for receiving a securing device (4) which is located on the stud. Said stud also has a recess which is complementary to the cross-section of the moulded body. The moulded body and the stud are connected by placing the stud on the moulded body and activating the securing device, so that the stud is compulsorily guided into the locking position or out into the unlocking position.

SPORTS SHOE

The invention relates to a shoe, especially for purposes of sports, as claimed in the preamble of claim 1.

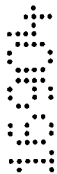
One such shoe is known from EP 0 815 759. The shoe has a sole with cleats detachably mounted on it, the cleats being held via positive connection and a locking arrangement on the sole. This positive connection consists for example of a polygonal base located on the cleat and a complimentary recess in the sole, while the locking arrangement consists of a screw on the cleats and of a threaded opening in the sole. The positive connection and the locking arrangement are located perpendicular to the running surface of the sole. This arrangement adversely affects handling when changing the cleats, since first the connection between the screw and screw opening must be established in order to then move the hexagon with the complementary recess in the desired position. The user is therefore forced to hold the cleat in position with one hand, while with the other hand he must turn the screw to the final locked position. Another disadvantage consists in that the screw head projects down to the running surface; this leads to increased wear and fouling. Therefore rapid replacement of the cleat while the shoe is being used is possible only under more difficult conditions.

Another embodiment is disclosed by DE 198 50 449, in which a preferably oblong cleat is first inserted into the recess of the sole in order to then push the cleat via a screw fitting and a locking hook into a position which extends behind the recess and to lock it. Since in this approach the screw is located almost parallel to the plane of the sole, wear or fouling of the screw during use is largely avoided. But in this case handling when replacing a cleat is not simple, since first the cleat must be inserted into the recess; this is only possible with great difficulty when it has been fouled with dirt and afterwards the cleat must be moved into the position which extends behind the recess via the screw and locking hook. In particular, cleats made oblong are subject during use to much higher stresses, so that the locking position which extends behind does not always establish a reliable connection. Another disadvantage consists in that this approach has several individual parts which are subject to wear; this makes the execution not only more expensive, but also more susceptible in use.

It would be desirable to thus devise a shoe, especially for purposes of sports, in which not only replacement of the cleat can be done easily and with one hand, but also reliable holding is enabled. Moreover, the embodiment will be characterised by use of few parts, and it will be compact and robust.

5 Any discussion of documents, devices, acts or knowledge in this specification is included to explain the context of the invention. It should not be taken as an admission that any of the material formed part of the prior art base or the common general knowledge in the relevant art in Australia on or before the priority date of the claims herein.

10 In accordance with the present invention there is provided a shoe, especially for purposes of sports, with a sole which has at least one cleat which is detachably connected to the sole via a positive connection and a locking arrangement, characterised in that the sole has a moulded body which is located at an angle between 15° and 25° to a plane of the sole, the moulded body further including an opening for accommodating the locking arrangement, wherein the cleat upon actuation of the locking arrangement is forced into a locked position or is moved out into an unlocked position.



Advantageously, by the arrangement of the moulded body at an angle between 15° and 25° the cleat can be easily installed via a locking arrangement which is preferably made as a screw and which is located at the same angle and automatic insertion of the cleat into the locked position can take place when the screw is turned. Conversely, upon unlocking, automatic removal into the unlocked position is achieved without two hands being necessary. The locking arrangement made as a screw is protected against wear and damage and in spite of a dirty sole, application of the cleat without great effort is possible.



Here it is especially preferred that the moulded body can be injected either with the sole as an integrated component or can be injected as a separate component or cemented into the sole. The preferably form-fitted connection between the cleat and moulded body is suitable when the moulded body has a T-shaped or round cross section.

Comprises/comprising" when used in this specification is taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

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2a

The invention is detailed below using embodiments in conjunction with the drawings.

Figure 1 shows a partially cutaway sole with the moulded body as claimed in the
5 invention and a cleat which has been cut in the lengthwise direction in the unlocked position;

Figure 2 shows a view according to Figure 1, but in the locked position;



Figure 3 shows a section according to line III-III in Figure 2;

Figure 4 shows a lengthwise section of another embodiment, and

Figure 5 shows a section along line V-V in Figure 4.

It can be recognized from Figure 1 that the sole 1 of a shoe, especially for purposes of sports, such as for example field sports, has a molded body 2 which can be either an integral component of the sole or, as shown, is injected or cemented into the sole as a separate part. Of course, other joining means between the sole and the molded body are also possible. Although the embodiments only ever show one molded body, it should be clear that the sole can or will have several molded bodies located anywhere to accommodate the cleats.

But it is significant for the invention that the molded body 2 is located at an angle α between 15° and 25° relative to the plane S of the sole. Tests have shown that the best handling is achieved at an angle α of 18° . But here it is not important whether the molded body 2 projects beyond the plane S of the sole or not. The embodiments shown however have the advantage that the sole can be produced to be relatively thin and thus weight-saving and that a connection can be made very easily between the molded body 2 and the cleat 5.

The molded body 2 as claimed in the invention is designed to accommodate the cleat 5 likewise shown in Figure 1 and to keep it locked, for which there is a locking arrangement 4.

According to the preferred embodiment in Figure 1, the molded body 2 has a T-shaped cross section with an opening 3 and a nut 11 located in the opening for accommodating the locking arrangement 4, this opening being located at the same angle α as the molded body. In order to be able to positively engage the cleat 5 to the molded body 2, the cleat 5 has a recess 6 complementary to the cross section of the molded body 2, as can be seen especially in the sectional view as shown in Figure 3. Moreover, on the cleat 5 a threaded screw 7 is attached via a locknut 9.

The connection of the molded body 2 to the cleat 5 takes place in the simplest manner by the cleat being placed on the molded body in the insertion direction F. By turning the threaded screw 7 the cleat 5 is forced into the locked position as shown in Figure 2. This special execution of the positive connection between the molded body 2 and the cleat 5 and the locking arrangement 4 adapts the cleat to the sole so that a reliable and compact locking position is achieved.

Unlocking or removal of the cleat 5 from its locked position into its unlocked position takes place in the reverse sequence by the cleat 5 being forced out against the insertion direction F by turning the threaded screw 7. As soon as the threaded connection between the threaded screw 7 and the nut 11 has been neutralized, the cleat 7 can be removed from the molded body 2.

Figure 2 shows the locked position and it is apparent that the cleat 5 has been screwed entirely onto the molded body 2 and the sole 1 via positive locking and the screw fitting and is joined securely and reliably to the sole. It is also enormously advantageous that if the threaded screw should come loose by itself unexpectedly, nevertheless the connection of the cleat and sole is preserved via the positive locking. Of course, the illustrated nut 11 could also be located nearer in the starting area of the opening 3, or instead of a nut, other known opposite threads could be used.

In the representations as shown in Figures 2 and 3, it also becomes clear that relatively high surface pressure is produced by the positive locking; this results in secure holding and good transfer of force. The locking arrangement 4 made as a screw fitting however ensures that the cleat 5 is necessarily and thus easily inserted and removed in spite of high surface pressure. This is of great importance especially in the case of use for athletic purposes, for example for field sports, because here fouling with dirt must often be expected.

Another version of the invention is shown in Figures 4 and 5; it is characterized essentially by its simplicity and thus could also be cheaply produced. The molded body 2 in this case has a round cross section and consists of a round rod or tube 12 which could also be produced from commercial goods. This round molded body 2 is connected by suitable fasteners such as for

example cement, to the sole 1, and likewise projects as claimed in the invention at an angle α between 15° and 25° relative to the plane S of the sole. Insertion of the cleat 5 in this approach is especially reliable, since according to experience the positive locking of round, complementary parts proceeds much more easily than for nonround parts. The cleat which is not detailed for this version therefore likewise has a recess 6 with a complementary, round cross section and a locking arrangement 4. In the case of the locking arrangement 4 made as a threaded screw 7, the insertion of the cleat 5 could take place in a simple manner. This is because, as soon as the cleat 5 has been placed on the round molded body 2, by turning the threaded screw 7 the cleat is necessarily pushed onto the round rod 12 up to the locked position. The prerequisite for this is also that the round rod has an opening 3 which is made as an opposing thread 8 to the threaded screw 7. One additional component, such as for example the nut 11 as shown in Figure 2, can be eliminated in this case.

Finally, it should be pointed out that the locking arrangement 4 as well as the molded body 2 could have shapes other than those shown without departing from the framework of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

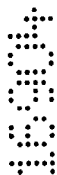
1. Shoe, especially for purposes of sports, with a sole which has at least one cleat which is detachably connected to the sole via a positive connection and a locking arrangement, characterised in that the sole has a moulded body which is located at an angle between 15° and 25° to a plane of the sole, the moulded body further including an opening for accommodating the locking arrangement, wherein the cleat upon actuation of the locking arrangement is forced into a locked position or is moved out into an unlocked position.
- 5 2. Shoe, especially for purposes of sports, as claimed in claim 1, characterised in that the angle is 18°.
- 10 3. Shoe, especially for purposes of sports, as claimed in claim 1 or 2, characterised in that the moulded body is an integrated component of the sole.
4. Shoe, especially for purposes of sports, as claimed in claim 1 or 2, characterised in that the moulded body consists of a separate part which is cemented or glued into the sole.
- 15 5. Shoe, especially for purposes of sports, as claimed in any one of the preceding claims, characterised in that the moulded body has a T-shaped cross section.
6. Shoe, especially for purposes of sports, as claimed in any one of claims 1 to 4, characterised in that the moulded body has a round cross section.
7. Shoe, especially for purposes of sports, as claimed in any one of the preceding claims, characterised in that the cleat has a recess which is complementary to the cross section of the moulded body.
- 20 8. Shoe, especially for purposes of sports, as claimed in claim 1 or 2, characterised in that the opening for accommodating the locking arrangement is located at the same angle as the moulded body.



9. Shoe, especially for purposes of sports, as claimed in claim 8, characterised in that the opening has a round cross section.

10. Shoe, especially for purposes of sports, as claimed in any one of claims 1, 8 or 9, characterised in that the locking arrangement consists of a screw fitting which is composed of a threaded screw which is attached to the cleat, and of an opposing thread which is located on the moulded body.

11. Shoe, especially for purposes of sports, as claimed in claim 10, characterised in that the threaded screw is supported on a locknut which is joined to the cleat.



12. Shoe, especially for purposes of sports, as claimed in any one of claims 7, 10 or 11, characterised in that the threaded screw and the locknut are supported on a cleat wall which terminates the recess.

13. Shoe, especially for purposes of sports, as claimed in claim 10, characterised in that the opposing thread consists of a nut which is located in the opening of the moulded body.



14. Shoe, especially for purposes of sports, as claimed in any one of claims 10 to 12, characterised in that the opposing thread is provided in the opening of the moulded body with a round cross section.

15. Shoe, substantially as hereinbefore described with reference to the accompanying drawings.

DATED this 16th day of February 2005

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Fig. 2

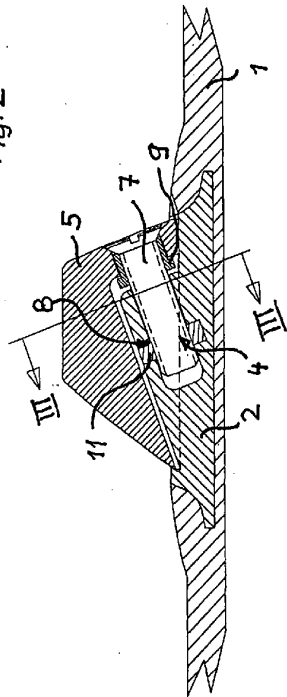


Fig. 1

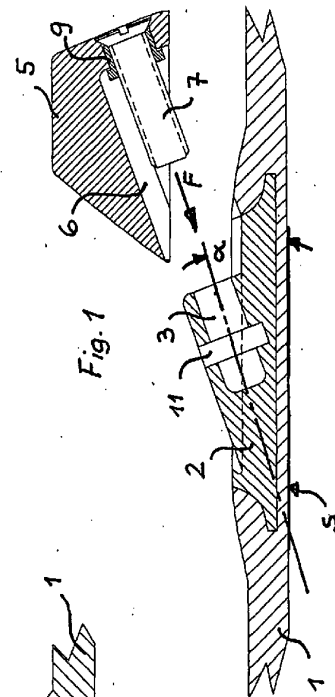


Fig. 3

