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(54) Safety toe cap

(57) The present invention relates to a safety toe cap (10) for mounting in a shoe (20), which safety toe cap (10) is arranged with a fibrous coating (13,14) on at least one of its sides (11,12) to create an air gap between the safety toe cap and a section (21, 22) of the shoe (20) facing the fibrous coating (13,14).

Advantageously, by providing the safety toe cap with a fibrous coating on at least one of its inside (12) or outside (11), an air gap is created between the safety toe cap (10) and a section (11,12) of the shoe (20) facing the coating. This has the effect that the shoe (20) is not in

direct contact with the at least one side (11,12) of the safety toe cap being coated, thereby reducing transfer of cold from the shoe (20) to the toe cap (10) and ultimately to a wearer's foot. Instead, the air in the gap created will be warmed up and thus have a warming effect on the toe cap (10). Further advantageous is that the coating (13,14) is fibrous, hence convection of warmed-up air in the gap is prevented since the fibrous coating will cause a frictional force to act on the air mass in the gap thereby preventing downdraft of the warmed-up air.

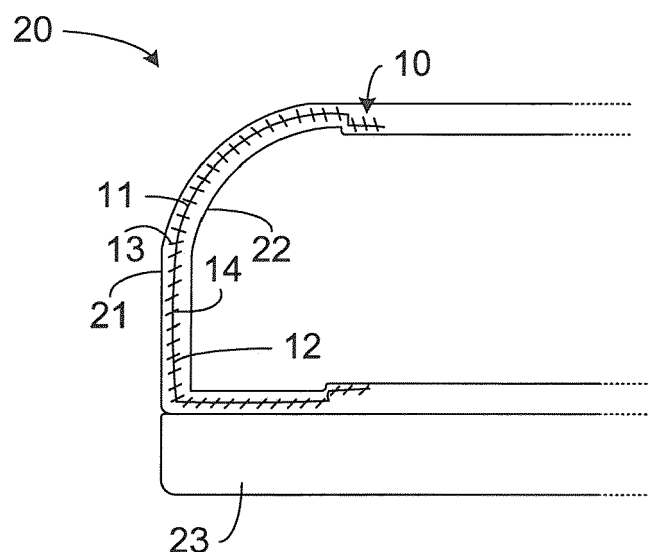


Fig. 3

Description

TECHNICAL FIELD

[0001] The invention relates to a safety toe cap for mounting in a shoe.

BACKGROUND

[0002] Shoes used for instance in industrial environments may be reinforced with a toe cap of metal, composite materials or any other suitable material which is hard and durable. These toe caps or commonly referred to as steel-toe caps or safety toe caps.

[0003] A problem in the art is that a toe cap of metal or composite material tends to be cooled under cold weather conditions. This will decrease the ability of the shoe to keep a wearer's foot warm.

SUMMARY

[0004] An object of the present invention is to solve or at least mitigate this problem and provide a safety toe cap which improves the ability of a shoe in which the safety toe cap is mounted to keep a wearer's foot warm.

[0005] This object is achieved in a first aspect of the present invention by a safety toe cap for mounting in a shoe, which safety toe cap is arranged with a fibrous coating on at least one of its sides to create an air gap between the safety toe cap and a section of the shoe facing the fibrous coating.

[0006] Advantageously, by providing the safety toe cap with a fibrous coating on at least one of its inside or outside, an air gap is created between the safety toe cap and a section of the shoe facing the coated side. This has the effect that the shoe is not in direct contact with the at least one side of the safety toe cap being coated, thereby reducing transfer of cold from the shoe to the toe cap and ultimately to the foot of a wearer of the shoe. Instead, the air in the gap created will be warmed up and thus have a warming effect on the toe cap. Further advantageous is that the coating is fibrous, hence convection of warmed-up air in the gap is prevented since the fibrous coating will cause a frictional force to act on the air mass thereby preventing downdraft of the warmed-up air.

[0007] In an embodiment of the present invention, both the inside and the outside of the safety toe cap are arranged with the fibrous coating. Advantageously, by providing both sides of the safety toe cap with the fibrous coating, a first air gap is created between the outside of the toe cap and a section of the shoe facing the coated outside, while a second air gap is created between the inside of the toe cap and a section of the shoe facing the coated inside. This will further prevent the foot of the wearer from becoming cold from a low environmental temperature.

[0008] In a further embodiment of the present inven-

tion, the fibrous coating is deposited onto the safety toe cap by means of flocking. Thus, small fibre particles are applied to the toe cap. The flocking process advantageously enables the small fibres to be arranged very close to each other, thereby making it possible to cause a relatively great frictional force to act on an air mass in the gap created between the coating and the shoe to prevent it from sinking towards the bottom of the shoe.

[0009] In yet an embodiment of the present invention, the safety toe cap is made of aluminium being advantageous for instance owing to its lightness.

[0010] In still an embodiment of the present invention, the fibrous coating is made of a fleece material being advantageous for instance owing to its insulating properties.

[0011] The object of the present invention is further attained in a second aspect of the present invention by a shoe comprising the safety toe cap according to embodiments of the present invention.

[0012] It is noted that the invention relates to all possible combinations of features recited in the claims. Further features of, and advantages with, the present invention will become apparent when studying the appended claims and the following description. Those skilled in the art realize that different features of the present invention can be combined to create embodiments other than those described in the following.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The invention is now described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a perspective view of the outside of a safety toe cap according to an embodiment of the present invention;

Figure 2 shows a perspective view of the inside of the safety toe cap illustrated in Figure 1; and

Figure 3 illustrates a sectional view of a safety toe cap according to embodiments of the present invention when mounted in a shoe.

DETAILED DESCRIPTION

[0014] The invention will now be described more fully hereinafter with reference to the accompanying drawings, in which certain embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided by way of example so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout the description.

[0015] Figure 1 shows a safety toe cap 10 according to an embodiment. In Figure 1, the outside 11 of the safety toe cap 10 is shown, i.e. the side of the toe cap facing the front of a shoe in which it is mounted. As can be seen, the outside 11 of the toe cap 10 is arranged with a fibrous coating, in this case a fleece material having been flocked onto the toe cap 10.

[0016] Figure 2 shows the safety toe cap 10 of Figure 1 in another view, where the other side of the toe cap is provided with the fibrous coating. In Figure 2, the inside 12 of the safety toe cap 10 is shown, i.e. the side of the toe cap facing the foot of a wearer of the shoe in which it is mounted. As can be seen, the inside 12 of the toe cap 10 is arranged with a fibrous coating in the form of a fleece material having been flocked onto the toe cap 10. As further can be seen in Figure 2, in an embodiment of the invention, a front section of the safety toe cap 10 is provided with a flange 15 extending radially from the safety toe cap 10 in a direction towards the foot of a wearer of a shoe in which the toe cap is mounted in order to further protect the wearer from being injured.

[0017] Figure 3 illustrates a sectional view of the safety toe cap 10 according to embodiments of the present invention when mounted in a shoe 20. As can be seen in Figure 3, a first air gap is created between the outside 11 of the toe cap 10 and a section 21 of the shoe with which the fibrous coating 13 arranged on the outside 11 of the shoe 10 is in contact. Thus, the air in the first air gap will be warmed-up and prevent the toe cap from being cooled down by cold ambient temperature. The fibrous coating 13 further results in a frictional force preventing downdraft of the warmed-up air in a direction towards the outer sole 23 of the shoe 20.

[0018] It should be noted that for illustrative purposes the relative size of the air gap is slightly exaggerated in Figure 3. Generally, the section 21 (normally made of leather) of the shoe is tightly stretched over the outside 11 of the safety toe cap 10.

[0019] With further reference to Figure 3, a second air gap is created between the inside 12 of the toe cap 10 and a section 22 of the shoe 20 with which the fibrous coating 14 arranged on the inside 12 of the shoe 10 is in contact. Again, the air in the second air gap will be warmed-up and prevent the toe cap from being cooled down by cold ambient temperature; the fibrous coating 14 further results in a frictional force preventing downdraft of the warmed-up air in a direction towards the outer sole 23 of the shoe 20.

[0020] Even though the invention has been described with reference to specific exemplifying embodiments thereof, many different alterations, modifications and the like will become apparent for those skilled in the art. The described embodiments are therefore not intended to limit the scope of the invention, as defined by the appended claims.

Claims

1. Safety toe cap (10) for mounting in a shoe (20), which safety toe cap (10) is arranged with:
 - a fibrous coating (13,14) on at least one of its sides (11,12) to create an air gap between the safety toe cap (10) and a section (21, 22) of the shoe (20) facing the fibrous coating (13,14).
2. Safety toe cap (10) according to claim 1, wherein the fibrous coating (13, 14) is deposited onto the safety toe cap (10) by means of flocking.
3. Safety toe cap (10) according to claims 1 or 2, further being arranged with the fibrous coating (13,14) on both its outside (11) and inside (12) to create said air gap between each of the outside (11) and the inside (12) and the corresponding sections (21, 22) of the shoe (20) facing the respective side (1, 12) of the safety toe cap (10).
4. Safety toe cap (10) according to any one of the preceding claims, wherein the fibrous coating (13,14) is of a fleece material.
5. Safety toe cap (10) according to any one of the preceding claims, further being at least partly of aluminium.
6. Safety toe cap (10) according to any one of the preceding claims, wherein a front section of the safety toe cap (10) is provided with a flange (15) extending radially from the safety toe cap (10) in a direction towards a foot of a wearer of the shoe (20) in which the safety toe cap (10) is mounted.
7. A shoe (20) comprising the safety toe cap (10) according to any one of the preceding claims.

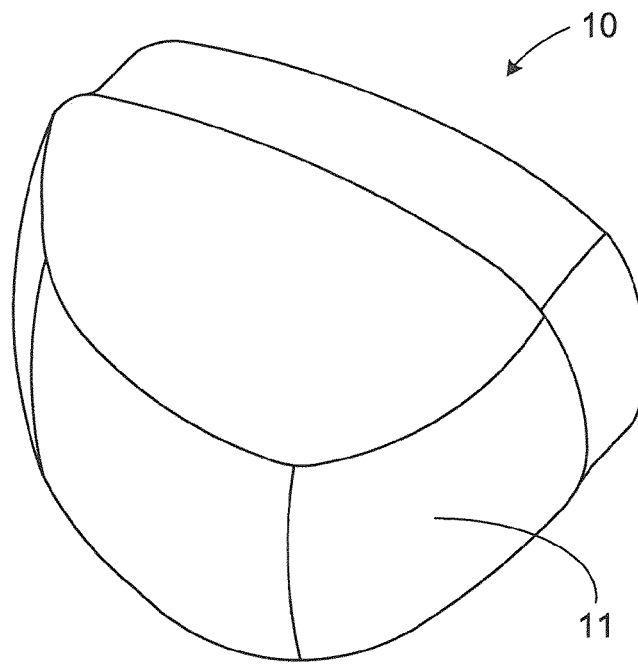


Fig. 1

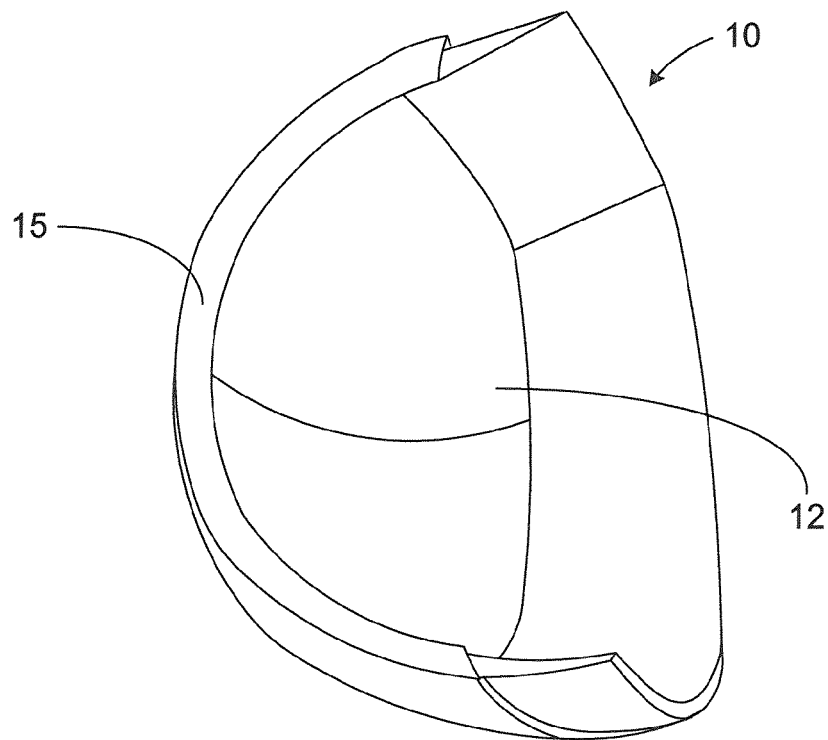


Fig. 2

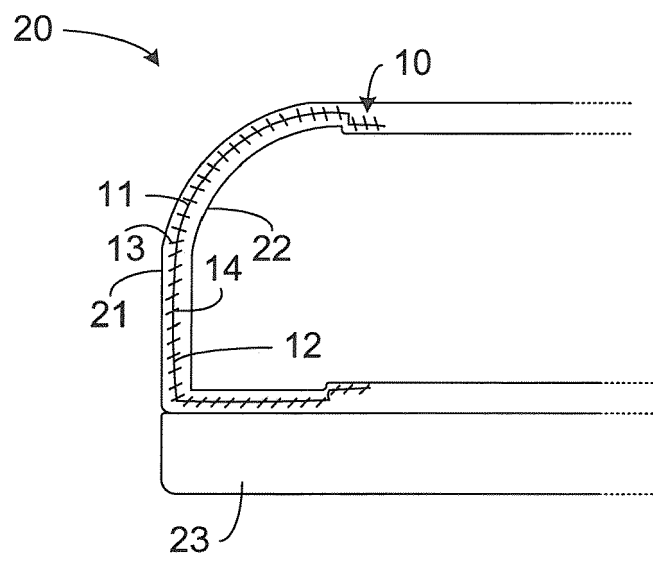


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 12 19 6272

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Place of search The Hague		Date of completion of the search 17 May 2013	Examiner Jones, Mark
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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