



(11)

EP 2 236 050 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
24.05.2017 Bulletin 2017/21

(51) Int Cl.:
A43B 5/14 ^(2006.01) **A43C 13/00** ^(2006.01)
A43C 13/08 ^(2006.01)

(21) Application number: **10158099.1**

(22) Date of filing: **29.03.2010**

(54) **Sports footwear, particularly for motorcycling**

Sportschuh, insbesondere für Motorradfahrer

Chaussure de sport, en particulier pour motocyclistes

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(30) Priority: **31.03.2009 IT PD20090074**

(43) Date of publication of application:
06.10.2010 Bulletin 2010/40

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Description

Technical field

[0001] The present invention relates to sports footwear, particularly for motorcycling, having the features set out in the preamble of the main claim.

Technological background

[0002] Items of sports footwear used in motorcycling are generally provided with a protection element fitted on an outer lateral region of the toe of the footwear. That protection element, which is commonly referred to as a "slide", is formed by a member of substantially rigid material whose function is to protect the upper and the sole from any abrasions caused by the footwear sliding over the road-bed, which situation is fairly common in sporting competitions when travelling round bends. For that reason, the protection element is fitted releasably on the footwear so as to be readily able to be replaced when necessary.

[0003] However, the region of the footwear involved is inevitably made more rigid owing to the provision of the protection element and this impedes the natural walking movement of the user because that region also extends in the region of the metatarsal articulation of the foot. In order not to excessively inhibit the walking comfort of the user, therefore, it is often preferred to use smaller protection elements which are substantially confined to the toe region of the footwear, but which involves incomplete protection of the upper and the sole along the side of the footwear itself.

[0004] A first solution to that problem is provided by US 6820354, which was filed in the name of Jolly Scarpe S.p.A. and which describes a protection element comprising two separate members which are substantially rigid and which are connected to each other by means of a pin type articulation which allows them limited relative pivoting. The protection element is fitted on the footwear in such a manner as to make the pin type articulation of the two rigid members substantially coincide with the metatarsal articulation of the foot so that the presence of the protection element does not inhibit the walking movement.

[0005] However, that solution is limited because the provision of a pin type articulation requires that the thicknesses of the two members in the region thereof be greater than a specific minimum value so as to ensure adequate mechanical resistance. This involves relative thickening of the protection element which may also involve a need to provide the pin type articulation at a position along the side of the footwear that is relatively withdrawn with respect to the optimum position defined by the metatarsal articulation, thereby also losing part of the advantage which is potentially provided by the solution incorporated in the new protection element.

[0006] The construction of this protection element fur-

ther involves more complex and numerous processing steps with respect to conventional protection elements, with a resultant negative influence on the production costs.

Statement of invention

[0007] The problem addressed by the present invention is to produce sports footwear which is structurally and functionally configured to overcome the limits set out above with reference to the prior art mentioned.

[0008] In the context of the above problem, an object of the invention is to realize sports footwear which is provided with a protection element which provides for simple and inexpensive production steps.

[0009] That problem is solved and this object is achieved by the present invention by means of sports footwear realized in accordance with the appended claims.

Brief description of the drawings

[0010] The features and advantages of the invention will be better appreciated from the detailed description of one preferred embodiment thereof, which is illustrated by way of non-limiting example with reference to the appended drawings, in which:

- Figure 1 is a side elevation view of an item of sports footwear constructed in accordance with the present invention,
- Figure 2 is a schematic front perspective view of a protection element of the footwear of Figure 1, in a first operating condition,
- Figure 3 is a schematic front perspective view of the protection element of Figure 2, in a second operating condition;
- Figure 4 is a schematic exploded view of the protection element of Figure 2.

Preferred embodiment of the invention

[0011] In the appended Figures, an item of sports footwear which is particularly suitable for motorcycling and competitive motorcycling and which is constructed in accordance with the present invention, is generally designated 1.

[0012] The footwear 1, which is in the form of a boot, comprises a sole 2, to which there is fixed an upper 3 in accordance with methods which are conventional *per se*. There are defined on the sole 2 a tread surface 2a of the footwear 1 and an edge 2b which extends peripherally from the tread surface towards the upper 3. There is further identified on the footwear 1 a toe region 4 and opposing lateral sides which are defined as the inner side and outer side, respectively, the outer side being designated 5.

[0013] The footwear 1 comprises a protection element

10 which is releasably fitted on a portion of the upper 3, for protection of it and the sole 2, in the region of an outer lateral region 6 of the footwear 1 extending from the toe region 4 along the outer side 5.

[0014] The protection element 10 comprises a first and a second portion which are designated 11 and 12, respectively, which are substantially rigid and between which there extends a highly deformable region 13 which is firmly connected thereto to allow a pivoting movement of the first portion 11 relative to the second portion 12 about an axis which is substantially coincident with the axis of metatarsal articulation of the foot of a user of the footwear 1.

[0015] The protection element 10 is preferably a unitary body which is produced in one piece by means of a process for injection-moulding and pressing polymer material. The polymer material may be selected from any one of the materials used in the sector for this purpose, although it is preferred to use thermoplastic polyurethanes (TPU) or polyamides, also charged with reinforcement fibres.

[0016] The protection element 10 is preferably fixed to the upper 3 by means of a screw 25 which acts on the first portion 11 and a pair of screws 26 and 27 which act on the second portion 12.

[0017] To that end, there is formed in the first portion 11 a through-hole 28 whilst there is preferably formed in the second portion 12 a pair of through-slots 29 and 30 in order to allow adjustment of the position of the second portion 12 both with respect to the upper 3 and with respect to the first portion 11.

[0018] It is further preferable for the slot 29 and the respective screw 26 to be protected by a cover element 31 which is engagingly received in a seat 32, which is defined in the second portion 12, by way of engagement means 33.

[0019] There are further identified on the protection element 10 an upper side 14 and a lower side 15, which extend in a generally parallel manner in a position remote from and near the tread surface 2a of the sole 2, respectively.

[0020] The highly deformable region 13 comprises a slit 16 for partial separation between the first portion 11 and the second portion 12, which slit 16 extends from the upper side 14 of the protection element 10, where it opens outwards, towards the lower side 15, but without acting on it directly.

[0021] The highly deformable region 13 further comprises a bridge portion 17 which extends between the first portion 11 and the second portion 12 and which is defined between the slit 16 and the lower side 15 of the protection element 10.

[0022] The bridge portion 17 advantageously has a thickness which is substantially similar to that of the first and second portions 11, 12.

[0023] Since the protection element 10 is advantageously a unitary body, the bridge portion 17 is constructed from the same material as the portions 11 and 12,

therefore having the same mechanical characteristics. Owing to the reduced section thereof, however, it is sufficiently deformable to allow a pivoting movement of the first portion 11 relative to the second portion 12.

[0024] The slit 16 is delimited by opposing surfaces 18 and 19 which are defined on the first and second portions 11, 12, respectively, which are connected in the region of a closed end 20 of the slit 16. In the region of the closed end 20, the profile of the slit 16 is substantially semi-circular.

[0025] Similarly, the profile of the slit 16 takes up a substantially semi-circular formation at a region 21 thereof adjacent to the bridge portion 17. That arrangement allows the distribution in a more uniform manner of any stresses resulting from the pivoting movement of the first and second portions 11, 12 in the region of the bridge portion 17 and the region of the first portion 11 between the slit 16 and the lower side 15.

[0026] It will further be appreciated that, at a predetermined value of angular movement of the first portion 11 with respect to the second portion 12, the surfaces 18, 19 touch, thereby preventing further continuation of movement.

[0027] Therefore, the surfaces 18, 19 constitute means for limiting the pivoting movement of the first portion 11 with respect to the second portion 12 and the spacing between them, when the slit 16 is dimensioned, is advantageously defined in accordance with the maximum pivoting movement required.

[0028] This feature advantageously allows prevention of excessive flexion behind the toe region 4 of the footwear 1, thereby safeguarding the integrity of the front portion of the foot.

[0029] Means for guiding the pivoting movement are further provided between the first and the second portion 11 and 12.

[0030] Preferably, those guide means comprise an appendage 22 extending from the surface 18 of the first portion 11 towards the second portion 12, as well as a seat 23 which is formed in the second portion 12 in order to house the appendage 22 for sliding engagement.

[0031] The seat 23 comprises a recess which is formed in the second portion 12 on the side facing the upper 3 so that the appendage 22 is guided for sliding between the second portion 12 and the upper 3.

[0032] In this manner, it is possible for the first portion 11 and the second portion 12 to be maintained substantially so as to be coplanate both when remote from and when near each other following the pivoting movement.

[0033] During the walking movement of the user, the footwear 1 moves from a first operative configuration, in which the first portion 11 and the second portion 12 are pivoted away from each other (Figures 1 and 2), into a second operative configuration, in which the first portion 11 and the second portion 12 are pivoted towards each other, as far as mutual contact in the region of the surfaces 18, 19 (Figure 3), respectively.

[0034] Therefore, the present invention solves the

problem set out above with reference to the prior art mentioned, simultaneously providing a number of other advantages, including the fact that the thickness of the protection element can advantageously be kept small in the region of the articulation between the two rigid portions, and consequently the axis of articulation of the protection element can be positioned in the region of the axis of metatarsal articulation of the foot.

[0035] This also allows, in addition to a more natural walking action, greater sensitivity to be achieved when changing the gears of the motorcycle.

[0036] Another advantage is provided by the extent of the protection element, whose surface can be advantageously and correctly dimensioned so as to protect the entire region of the upper and the sole that is potentially exposed to abrasions.

[0037] Furthermore, the protection element is advantageously formed by means of a single injection-moulding and pressing operation which is relatively simple and inexpensive per se.

Claims

1. Sports footwear (1), particularly for motorcycling, comprising a protection element (10) which is fitted on a lateral toe region (6) of the footwear and includes a first portion (11) and a second portion (12) which are substantially rigid and are associated with one another, **characterized in that** the protection element (10) is a unitary body and **in that** a region (13) with a high degree of deformability is defined in the protection element, extending between the first and second portions and is connected firmly thereto to allow a pivoting movement of the first portion relative to the second portion.
2. Footwear according to Claim 1 in which the region (13) with a high degree of deformability comprises a slit (16) which separates the first and second portions and which extends from an upper side (14) of the protection element remote from a tread surface (2a) of the footwear towards a lower side (15) of the protection element in the vicinity of the tread surface, as well as a bridge portion (17) which extends between the first and second portions and is defined between the slit and the lower side of the protection element.
3. Footwear according to Claim 2 in which the slit (16) has a substantially semicircular profile (21) in the region of the bridge portion.
4. Footwear according to Claim 2 or Claim 3 in which the slit (16) has a substantially semicircular profile in the region of a closed end (20) thereof remote from the upper side (14).
5. Footwear according to any one of Claims 2 to 4 in which the opposed surfaces (18, 19) of the first and second portions (11, 12) which delimit the slit (16) define means for limiting the pivoting movement.
6. Footwear according to any one of the preceding claims in which guide means for the pivoting movement are provided between the first and second portions.
7. Footwear according to Claim 6 in which the guide means comprise an appendage (22) extending from one of the first and second portions towards the other of the first and second portions and a seat (23) formed in the other of the first and second portions to house the appendage slidably.
8. Footwear according to Claim 7 in which the seat (23) comprises a recess which is formed in the other of the first and second portions on the side facing an upper (3) of the footwear so that the appendage (22) is guided for sliding between the other of the first and second portions and the upper.
9. Footwear according to any one of the preceding claims in which the first and second portions (11, 12) are connected, separately and releasably, to the lateral toe region of the footwear.
10. A protection element (10) for sports footwear, particularly for motorcycling, which can be fitted on a lateral toe region (6) of the footwear and includes a first portion (11) and a second portion (12) which are substantially rigid and are associated with one another, **characterized in that** the protection element (10) is a unitary body and **in that** a region (13) with a high degree of deformability is defined in the protection element between the first and second portions and is connected firmly thereto to allow a pivoting movement of the first portion relative to the second portion.

Patentansprüche

1. Sportschuh (1), insbesondere zum Motorradfahren, mit einem Schutzelement (10), das auf einen seitlichen Zehenbereich (6) des Sportschuhs montiert ist und einen ersten Bereich (11) und einen zweiten Bereich (12) umfasst, die im Wesentlichen steif und miteinander verbunden sind, **dadurch gekennzeichnet, dass** das Schutzelement (10) ein einheitlicher Körper ist, und dadurch, dass sich ein Bereich (13), der mit einem hohen Grad an Verformbarkeit im Schutzelement ausgebildet ist, zwischen den ersten und zweiten Bereichen erstreckt und fest damit verbunden ist, um eine Schwenkbewegung des ersten Bereichs relativ zum zweiten Bereich zu ermöglichen.

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2. Schuh gemäß Anspruch 1, bei dem der Bereich (13) mit einem hohen Grad an Verformbarkeit einen Schlitz (16) aufweist, der die ersten und zweiten Bereiche trennt und der sich von einer oberen Seite (14) des Schutzelements, entfernt von einer Trittfläche (2a) des Sportschuhs, zu einer unteren Seite (15) des Schutzelements in der Nähe der Trittfläche erstreckt, sowie einen Brückenbereich (17) aufweist, der sich zwischen den ersten und zweiten Bereichen erstreckt und zwischen dem Schlitz und der unteren Seite des Schutzelements ausgebildet ist. 5
3. Schuh gemäß Anspruch 2, bei dem der Schlitz (16) ein im Wesentlichen halbkreisförmiges Profil (21) im Bereich des Brückenbereichs aufweist. 10
4. Schuh gemäß Anspruch 2 oder 3, bei dem der Schlitz (16) ein im Wesentlichen halbkreisförmiges Profil im Bereich eines zugehörigen geschlossenen Endes (20) aufweist, das von der oberen Seite (14) entfernt ist. 15
5. Schuh gemäß einem der Ansprüche 2 bis 4, bei dem die gegenüberliegenden Flächen (18, 19) der ersten und zweiten Bereiche (11, 12), die den Schlitz (16) begrenzen, eine Einrichtung zum Begrenzen der Schwenkbewegung bilden. 20
6. Schuh gemäß einem der vorhergehenden Ansprüche, bei dem eine Führungseinrichtung für die Schwenkbewegung zwischen den ersten und zweiten Bereichen vorgesehen ist. 25
7. Schuh gemäß Anspruch 6, bei dem die Führungseinrichtung einen Fortsatz (22) aufweist, der sich von dem einen der ersten und zweiten Bereiche zum anderen der ersten und zweiten Bereiche erstreckt, und einen Sitz (23) aufweist, der auf dem anderen der ersten und zweiten Bereiche ausgebildet ist, um den Fortsatz gleitbeweglich aufzunehmen. 30
8. Schuh gemäß Anspruch 7, bei dem der Sitz (23) eine Aussparung aufweist, die auf dem anderen der ersten und zweiten Bereiche auf der Seite ausgebildet ist, die einem oberen Teil (3) des Sportschuhs zugewandt ist, so dass der Fortsatz (22) zum Gleiten zwischen dem anderen der ersten und zweiten Bereiche und dem oberen Teil geführt wird. 35
9. Schuh gemäß einem der vorhergehenden Ansprüche, bei dem die ersten und zweiten Bereiche (11, 12) separat und abnehmbar mit dem seitlichen Zehenbereich des Sportschuhs verbunden sind. 40
10. Schutzelement (10) für einen Sportschuh, insbesondere zum Motorradfahren, der auf einem seitlichen 45

Zehenbereich (6) des Sportschuhs montiert werden kann und einen ersten Bereich (11) und einen zweiten Bereich (12) umfasst, die im Wesentlichen steif und miteinander verbunden sind, **dadurch gekennzeichnet, dass** das Schutzelement (10) ein einheitlicher Körper ist, und dadurch, dass ein Bereich (13) mit einem hohen Grad an Verformbarkeit im Schutzelement zwischen den ersten und zweiten Bereichen ausgebildet und fest damit verbunden ist, um eine Schwenkbewegung des ersten Bereichs relativ zum zweiten Bereich zu ermöglichen.

Revendications

1. Chaussure de sport (1), en particulier pour le motocyclisme, comprenant un élément de protection (10) qui est inséré sur une région d'orteil latérale (6) de la chaussure et inclut une première partie (11) et une seconde partie (12) qui sont sensiblement rigides et sont associées l'une à l'autre, **caractérisée en ce que** l'élément de protection (10) est un corps unitaire et **en ce qu'**une région (13) avec un haut degré de déformabilité est définie dans l'élément de protection, s'étendant entre les première et seconde parties et est fermement reliée à celles-ci pour permettre un mouvement de pivotement de la première partie par rapport à la seconde partie. 50
2. Chaussure selon la revendication 1, dans laquelle la région (13) avec un haut degré de déformabilité comprend une fente (16) qui sépare les première et seconde parties et qui s'étend depuis un côté supérieur (14) de l'élément de protection à distance d'une surface de marche (2a) de la chaussure vers un côté inférieur (15) de l'élément de protection à proximité de la surface de marche, ainsi qu'une partie de pont (17) qui s'étend entre les première et seconde parties et est définie entre la fente et le côté inférieur de l'élément de protection. 55
3. Chaussure selon la revendication 2, dans laquelle la fente (16) présente un profil sensiblement semi-circulaire (21) dans la région de la partie de pont.
4. Chaussure selon la revendication 2 ou la revendication 3, dans laquelle la fente (16) présente un profil sensiblement semi-circulaire dans la région d'une extrémité fermée (20) de celle-ci à distance du côté supérieur (14).
5. Chaussure selon l'une quelconque des revendications 2 à 4, dans laquelle les surfaces opposées (18, 19) des première et seconde parties (11, 12) qui délimitent la fente (16) définissent des moyens pour limiter le mouvement de pivotement.
6. Chaussure selon l'une quelconque des revendica-

tions précédentes, dans laquelle des moyens de guidage pour le mouvement de pivotement sont prévus entre les première et seconde parties.

7. Chaussure selon la revendication 6, dans laquelle les moyens de guidage comprennent un appendice (22) s'étendant depuis une des première et seconde parties vers l'autre des première et seconde parties et un siège (23) formé dans l'autre des première et seconde parties pour loger l'appendice par coulissement. 5
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8. Chaussure selon la revendication 7, dans laquelle le siège (23) comprend un évidement qui est formé dans l'autre des première et seconde parties sur le côté tourné vers une tige (3) de la chaussure de sorte que l'appendice (22) soit guidé pour le coulissement entre l'autre des première et seconde parties et la tige. 15
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9. Chaussure selon l'une quelconque des revendications précédentes, dans laquelle les première et seconde parties (11, 12) sont reliées, séparément et de manière détachable, à la région d'orteil latérale de la chaussure. 25
10. Élément de protection (10) pour une chaussure de sport, en particulier pour le motocyclisme qui peut être inséré sur une région d'orteil latérale (6) de la chaussure et inclut une première partie (11) et une seconde partie (12) qui sont sensiblement rigides et sont associées l'une à l'autre, **caractérisé en ce que** l'élément de protection (10) est un corps unitaire et **en ce qu'**une région (13) avec un haut degré de déformabilité est définie dans l'élément de protection entre les première et seconde parties et est fermement reliée à celles-ci pour permettre un mouvement de pivotement de la première partie par rapport à la seconde partie. 30
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Fig. 3

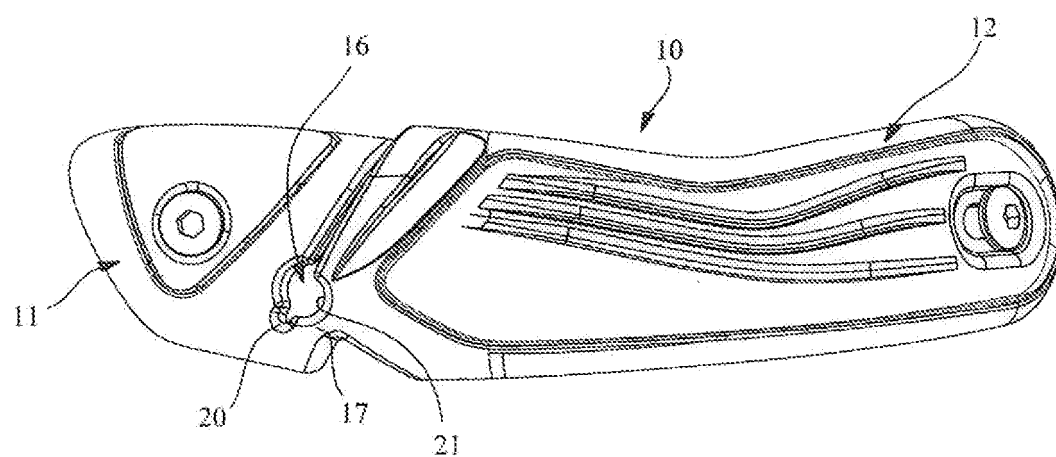
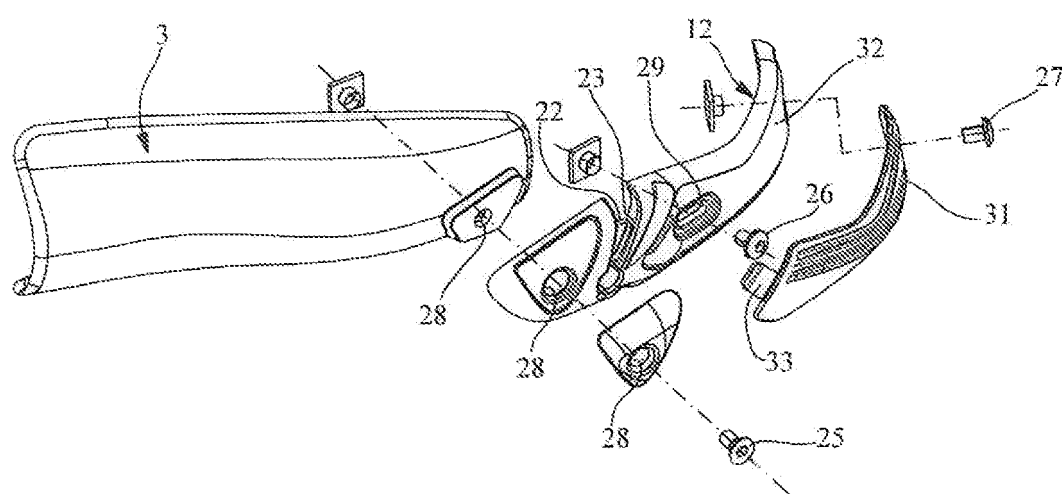


Fig. 4



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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