(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 837 415 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
18.02.2015 Bulletin 2015/08

(51) Int Cl.:
A63C 11/22 *(2006.01)*

(21) Application number: **14180215.7**

(22) Date of filing: **12.08.2013**

(84) Designated Contracting States:
AL 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 RS SE SI SK SM TR
Designated Extension States:
BA ME

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
13180110.2 / 2 837 413

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Remarks:
This application was filed on 07-08-2014 as a divisional application to the application mentioned under INID code 62.

(54) Coupling means

(57) The present invention relates to coupling means to connect a hand strap to a grip of a sport pole, wherein said coupling means are snap connecting elements, wherein said snap connecting element is a bar-shaped clip having a core which is an extension of a webbing protruding from said hand strap, said core being covered by a cover, preferably a plastic cover, **characterised in that** said cover is provided exclusively on the upper face, on the lower face and on the terminal side of said core.

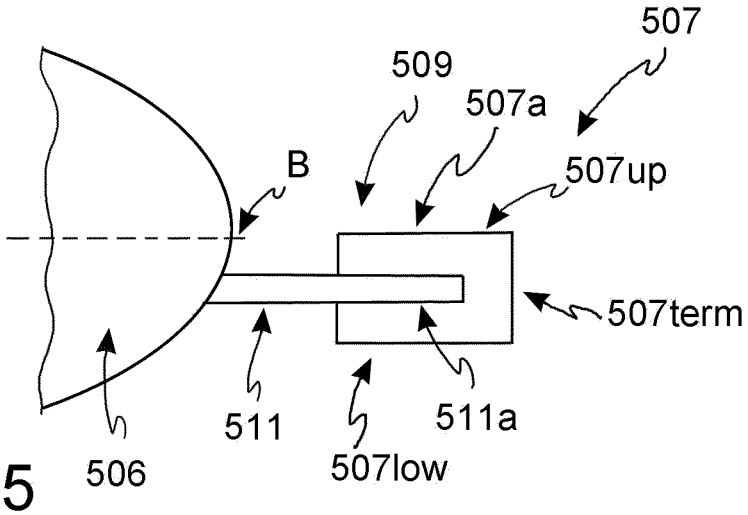

FIG. 5

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Description

[0001] The present invention relates to coupling means (507, 607) to connect a hand strap (3) to a grip (2) of a sport pole, wherein said coupling means are snap connecting elements, wherein said snap connecting element is a bar-shaped clip having a core (511a) which is an extension of a webbing (511) protruding from said hand strap (3), said core being covered by a cover (507a), preferably a plastic cover, **characterised in that** said cover (507a) is provided exclusively on the upper face (507_{up}), on the lower face (507_{low}) and on the terminal side (507_{term}) of said core.

Background

[0002] Conventional handles of ski and other sports poles comprise a grip member of a substantially cylindrical shape disposed at the upper end portion of the ski pole with a hand strap in the form of a closed loop attached thereto, through which the user's hand is inserted upwardly. Usually, the point of attaching said hand strap to the grip is on the top of said grip. Such a hand strap provides a proper grip for transfer of pushing forces to the pole. The hand strap, however, does not keep the pole handle accommodated in the hand if the grip of the hand around the grip element ceases. When the hand drops the grip element while the pole is not in contact with a support surface, the pole will fall somewhat down and will hang in the strap, while will lie across the back of the hand or the wrist.

[0003] Poles having a hand strap capable to keep the hand accommodated also if the grip of the hand around the grip element ceases have been described. An elastic auxiliary strap, which is fastened to the grip element and is adapted to keep the grip element in a grip position relatively to the hand even if the hand releases the grip element is described in US5248163. WO0134255 describes a ski pole handle with a possibility of adjusting the effective length of the hand strap according to the hand of the users.

[0004] The disadvantage of the cited prior constructions of the grip of ski poles is that they do not provide a sufficiently effective impulse.

[0005] EP0266329 describes a ski pole handle device, which comprises a laterally protruding element, which forms a supporting surface for the palm of the hand. WO2007077544 describes a grip handle having a main wrist strap and an additional strap in the form of a closed loop, wherein the point of attaching the additional strap to the grip handle member is disposed on the opposite side and higher in relation to the attaching point of the main wrist strap.

[0006] However, the cited ski pole handles are not capable to maximise the effectiveness of forces transmitted to the ski pole by the user. In particular, the prior art constructions do not direct the force exerted by the hand that holds the handle entirely on the tip of the ski pole, in this manner wasting part of the forces exerted on the ski pole. This is a particularly felt need for ski poles to be used in competitive cross-country skiing, where the maximisation of the forces transmitted from the arms and the hands of the skier to the ski pole tip is an essential requirement to optimize the results obtainable.

[0007] It is here described a kit comprising a pole and a hand strap that maximises the effectiveness of the forces transmitted by the user.

Summary of the invention

[0008] The present invention relates to coupling means (507, 607) to connect a hand strap (3) to a grip (2) of a sport pole, wherein said coupling means are snap connecting elements, wherein said snap connecting element is a bar-shaped clip having a core (511a) which is an extension of a webbing (511) protruding from said hand strap (3), said core being covered by a cover (507a), preferably a plastic cover, **characterised in that** said cover (507a) is provided exclusively on the upper face (507_{up}), on the lower face (507_{low}) and on the terminal side (507_{term}) of said core.

It is here described a kit comprising:

- a hand strap;
- a pole;

said pole comprising a grip, a shaft and a tip, wherein said pole has a longitudinal axis (L), said shaft, grip and tip being aligned along the same longitudinal axis (L), said hand strap (3) being connected, via coupling means (7) to said grip, characterised by the fact that the connection point (X) of said hand strap (3) to said grip (2) is located on said longitudinal axis (L).

[0009] The construction of the present invention surprisingly maximises the transfer of pushing forces from the user's hand to the pole tip, as it will become evident from the figures and description that follow. The kit of the present invention surprisingly solves the problem of entirely collecting the forces exerted by the user's hand forearm and arm and the problem of direct them entirely to the tip of the pole, without wasting part of said forces, as it commonly happens when using prior art constructions. The kit of the present invention thus allows the maximization of the boost achievable by the user.

Description of the drawings

[0010]

FIG. 1 is a perspective view of the kit here described.
FIG. 2 is a perspective view of the hand strap here described inserted into the user's hand.
FIG. 3 is a further perspective view of the hand strap here described.
FIG. 4 is a perspective of a particular of an embodiment of the grip.

FIG. 5 is a front view of an embodiment of the coupling mean.

FIG. 6 is a top view of the embodiment of FIG. 5 of the coupling mean.

FIG. 7 is a perspective view of a further embodiment of the hand strap here described inserted into the user's hand.

FIG. 8 is a further perspective view of the embodiment of FIG. 7 of the hand strap.

Detailed description

[0011] The kit here described is schematically depicted in FIG. 1. It comprises a pole (1) and a hand strap (3). Said pole (1) comprises a grip (2), a shaft (53) and a tip (51). Preferably, said pole comprises also a basket adapter (54) and a basket (52).

[0012] By hand strap is here meant that element into which the hand user is inserted to hold the grip.

[0013] By grip element is here meant that element which is suitable to be gripped by the hand.

[0014] Said pole has a longitudinal axis (L). Said grip comprises at its bottom a hole for receiving said shaft. Grip, shaft and tip are aligned along the same longitudinal axis (L), wherein (L) is as defined above.

[0015] The kit of the present invention is characterised by the fact that the connection point (X) of said hand strap (3) to said grip (2) is located on said longitudinal axis (L). The connection between said hand strap (3) and said grip (2) is obtained through coupling means (7).

[0016] Said coupling means (7) are permanent or snap connecting elements. Permanent connecting elements are selected among the group comprising glue, screws, bolts. Snap connecting elements are selected from the group comprising clip or webbing.

[0017] The hand strap here described is schematically depicted in FIG. 1, 2 and 3. Said hand strap (3, 203, 303) comprises a dorsal portion (D) and a palmar portion (P). Said dorsal portion (D) and palmar portion (P) are kept together by at least a first (12, 212), a second (13, 213) and a third (14, 214, 314) connecting portion. Said connecting portions (12, 13, 14, 212, 213, 214, 314) comprise a bending line (B), delimiting a dorsal face comprising the dorsal portion (D) and a palmar face comprising the palmar portion (P) on said hand strap (3, 203, 303). Said connecting portions define at least a palm opening (4, 204) fitting the palm of the user's hand, a fingers opening (5, 205) from which emerges the fore finger, the middle finger, the ring finger and the small finger and a thumb opening (6, 206, 306) from which emerges the thumb finger. Said palm, fingers and thumb openings comprise a hedge (204', 205', 206') along said dorsal and palmar face of said hand strap.

[0018] The user's hand is inserted into said hand strap (3, 203) to hold said grip (2). Once the user's hand is closed on the grip, the palmar portion (P) of said hand strap will enter into contact with said grip.

[0019] Suitable non-slip elements are properly applied on said palmar portion (P) of said hand strap, or said palmar portion (P) is made by a non-slip fabric.

[0020] To facilitate the insertion of the user's hand into said hand strap and to guarantee that the hand will be firmly kept into said hand strap during usage, said hand strap is preferably provided with suitable adjustable means. In a preferred embodiment, the first connecting portion (12, 212) will be conveniently adjustable to the hand size, preferably by Velcro or by any other suitable means.

[0021] Said hand strap (3, 203, 303) is provided with a tongue (9, 209, 309) to fasten said hand strap to said grip (2) via said coupling means (7, 207, 307).

[0022] Said tongue (9, 209, 309) protrudes from said hand strap from the third connecting portion (14, 214, 314).

[0023] The point from which protrudes said tongue from said third connecting portion defines said connection point (X). Once said hand strap is connected to said grip, said connection point (X) is positioned along said longitudinal axis (L).

[0024] Once the user's hand is inserted into said hand strap, as it is evident form FIG. 2, said tongue (209) sticks out between the thumb and the forefinger. The manner said tongue (9, 209, 309) protrudes from the hand strap is an essential feature of the present invention.

[0025] Said tongue (209, 309) protrudes from said third connection portion (314) at a point, which is shifted with respect to said bending line (B) and is positioned on said palmar face. Preferably, said tongue (309) protrudes from said third connection portion (314) on said palmar face at least 0.7 cm below said bending line (B), preferably 0.85 cm, still more preferably about 1 cm below said bending line (B).

[0026] Positioning said palmar portion of said hand strap on a rigid flat surface (S), said tongue (309) protrudes from said third connection portion (314) in a manner essentially coplanar to said palmar portion, i.e. the lower face of said tongue is in contact with said rigid flat surface as it is the palmar portion of said hand strap, the lower face of said tongue forms an angle of about 360° with said rigid flat surface (S). Alternatively, said tongue (209, 309) protrudes from said third connection portion (314) forming an angle of about 340° with said rigid flat surface (S), or 345°, or 350°, or 352°, or 355°, or 357°, or 359°C.

[0027] To obtain the here described hand strap, having said tongue protruding from said third connecting portion, the following method is followed:

- a hand strap comprising a dorsal portion (D) and a palmar portion (P) is provided, wherein said dorsal portion (D) and palmar portion (P) are kept together by at least a first (12, 212), a second (13, 213) and a third (14, 214) connecting portion. Said connecting portions (12, 13, 14, 212, 213, 214) comprise a bending line, delimiting a dorsal face comprising the palmar portion (P) and a palmar face comprising the

palmar portion (P) on said hand strap (3, 203). Said connecting portions define at least a palm opening (4, 204) fitting the palm of the user's hand, a fingers opening (5, 205) from which emerges the fore finger, the middle finger, the ring finger and the small finger and a thumb opening (6, 206) from which emerges the thumb finger. Said palm, fingers and thumb openings comprise a hedge (204', 205', 206') along said dorsal and palmar face of said hand strap;

- a webbing is provided, which is preferably a nylon or cotton webbing;
- said webbing is sewn on said hand strap and it extends trough said third connecting portion (314) on both the palmar face comprising the palmar portion (P) and the dorsal face comprising the dorsal portion (D) of said hand strap. A bending line on said webbing is formed, delimiting a palmar length and a dorsal length of said webbing. Said tongue (309) drawn shifted from said bending line, on the palmar length of said webbing. Preferably, said tongue drawn at least 0.7 cm below said bending line, preferably 0.85 cm, still more preferably about 1 cm below said bending point line, on the palmar length.

[0028] In a preferred embodiment, said bending line corresponds to the median of said webbing.

[0029] The here described pole comprises a grip. Said grip is substantially a circular cylinder, comprising a base portion (21) and an upper portion (22) having a top (8), wherein said upper portion forms a step (23) on said grip. The inflection point (24) of said step (23) is on said longitudinal axis (L) so that the connection point (X) of said hand strap (3), once connected via coupling means (7) to said grip (2), finds its location on said longitudinal axis (L). In a preferred embodiment, said step (423) thrust forward with respect to the base element (421) so that two opposites points of inflection (424, 425) are created between said upper portion (422) and said base element (421). Preferably, said step has a flexuous profile, to follow the anatomy of the hand.

[0030] Said hand strap is connected to said grip via coupling means (7, 207, 307) comprised on said tongue (9, 209, 309). Preferably, said coupling means are snap connecting elements, selected among clip elements or webbings. Said clip elements are preferably selected from block-shaped or bar-shaped element. Said webbings are preferably webbings forming a closed loop.

[0031] In a preferred embodiment, said grip is provided with a cavity (10, 410) with at least an opening towards the outside, at the inflection point (24) of said grip and which protrudes inside said grip. Said cavity (10, 410) host said coupling means (7). In a further preferred element, said cavity (410) is featured to alternatively host a clip or a webbing. In this embodiment, said cavity (10) has two opening towards the outside: opening (A), at the inflection point (424) and opening (B) towards the top (408) of said upper portion (422). Said coupling mean is inserted into said cavity via the opening (A), so that the connection point (X) of said hand strap is positioned along said longitudinal axis (L). When said coupling mean is a clip, said clip, inserted into said cavity (10) via the opening (A), remains entrapped into said cavity. When said coupling mean is a webbing, said webbing is inserted into said cavity (10) via the opening (A) and the terminal end of said webbing escapes from said cavity via the opening (B).

[0032] Said clip and said webbing are preferably entrapped into said grip via entrapping means known in the state of the art. A preferred embodiment of an entrapping mean will be further described in the following paragraphs.

[0033] It is an object of the present invention, presented in FIG. 5, a coupling mean (507) on said tongue (509) which is a clip which is a bar-shaped element having a core (511a) which is an extension of the webbing (511), said core being covered by a cover (507a), preferably by a plastic cover. The cover (507a) is provided on the upper face (507_{up}), on the lower face (507_{low}) and on the terminal side (507_{term}) of said core. Said bar-shaped clip has a thickness ranging from 1 to 15 mm, or ranging from 3 to 8 mm, or of about 5 mm and a length ranging from 5 to 40 mm, or from 15 to 30 mm, or of about 20 mm and a width ranging from 5 to 30 mm, or from 8 to 20 mm, or of about 13 mm.

[0034] In a further preferred embodiment, depicted in FIG. 6, said coupling mean (607) which is the bar-shaped clip above described comprises an opening (640) running through it in its thickness. Preferably, said opening (640) is circular. Said opening (604) is defined as a female element.

[0035] The clip of the present invention, having a core covered by a cover (507a) on the upper face (507_{up}), on the lower face ($S07_{low}$) and on the terminal side (507_{term}) of said core offers the following advantages with respect to clip completely covered by plastic:

- to equal width of said clip, a wider webbing may be used, since there is no space used by an eventual plastic cover on the front and on the back portion of the clip itself and a wider webbing means a clip more resistant, especially when said clip comprises an opening running though it in its thickness;
- a clip only partially covered by plastic is more flexible than a clip completely covered by plastic, and to a greater flexibility corresponds a greater resistance.

[0036] Said clip comprising an opening (640) engages with said grip (402) by entering into the cavity (410) through the opening (A). An entrapping element comprising a male element hosted by said grip fixes said clip to the grip itself. Preferably, said male element is a pivot pin (430) carried by said entrapping element, wherein said entrapping element is removable and, once in use, it is inserted on the top of said grip.

[0037] In a further embodiment, said hand strap (803, 903) comprises a lateral support (780, 880) for the thumb,

as depicted in FIG. 7 and 8. Said lateral support (780, 880) protrudes from the palmar hedge (706', 806') of the thumb opening (706, 806). Said lateral support (780, 880) is adjacent to the third connecting portion (714, 814), and preferably it extends in length for about a half of said palmar hedge (706', 806'). Said lateral support (780, 880) is essentially semi-circular, having a diameter of about 2 - 5 cm, or about 2.5 - 4 cm, or about 3 cm. Said lateral support is realized in any kind of semi-rigid fabric or leather. The man skilled in the art will made the choice of the proper material in order to have a lateral support flexible enough to adapt itself to the conformation of the user's thumb and rigid enough to hold up the thumb. Said lateral support, having the described feature, leaves the thumb free to exercise the necessary movement and supports it during the transmission of the thrust force to the pool, thus increasing the force transmitted.

[0038] In an embodiment of the present invention, said tip (51) is removable from said shaft (53).

[0039] The here described hand strap, characterised by comprising a tongue protruding from the third connecting portion at a point which is shifted with respect to the bending line (B), wherein said bending line (B) delimits a dorsal face comprising the dorsal portion (D) and a palmar face comprising the palmar portion (P) on said hand strap, and said point is positioned on said palmar face, allows the greatest collection of the forces transmitted by the user's hand. Moreover, when the here described hand strap comprises the here described lateral support for the thumb, it allows to collect an additional force generated by the user, additional force which is not collected but lost with the constructions of the prior art.

[0040] The here described shaft is made in any material and has any one of the forms suitable and known to the man skilled in the art.

[0041] The here described kit, comprising the here described hand strap and pole, allows a substantial increase of the intensity of the forces transmitted to the tip of said pole by the user's hand, thereby accelerating the boost effectiveness.

[0042] In a preferred embodiment, said pole is a cross-country ski pole. In an alternative embodiment, said pole is a Nordic walking pole.

[0043] The location of the connection point (X) of the here described hand strap (3) on said longitudinal axis (L) offers the unique opportunity that the boost operated by the user is entirely focused on the longitudinal axis (L) of said pole, thus making said boost entirely available to the tip.

[0044] Poling force effectiveness depends on positioning of the trunk, shoulder, elbow, hand and pole. Axial force is transmitted through each pole and has force components in the vertical and horizontal (propulsive) directions. The here described hand strap and grip and the manner in which they are engaged surprisingly result in a maximisation of the force in the horizontal direction, thus to a maximisation of the propulsive forces generated.

[0045] With reference to ski pole, when using the ski pole constructions of the prior art, the boost occurs in a retracted position, so that, with the same intensity of the boost, the force which is transmitted to the tip is of a lower intensity with respect to the force transmitted when using the kit of the present invention.

[0046] The here described kit, comprising a pole (1) and a hand strap, wherein said pole has a longitudinal axis (L) along which are aligned the shaft (53), the grip (2) and the tip (51), wherein the above defined connection point (X) of said hand strap is located on said grip on said longitudinal axis (L) on the tread of a step forming the upper portion of said grip, allows to obtain the maximisation of the effectiveness of the forces transmitted by the user during the boost, by directing them entirely on the tip of the ski pole and avoiding their dispersion in different direction.

Claims

1. Coupling means (507, 607) to connect a hand strap (3) to a grip (2) of a sport pole, wherein said coupling means are snap connecting elements, wherein said snap connecting element is a bar-shaped clip having a core (511a) which is an extension of a webbing (511) protruding from said hand strap (3), said core being covered by a cover (507a), preferably a plastic cover, **characterised in that** said cover (507a) is provided exclusively on the upper face (507_{up}), on the lower face (507_{low}) and on the terminal side (507_{term}) of said core.

2. A coupling mean according to claim 1, wherein said bar-shaped clip has a thickness ranging from 1 to 15 mm, or ranging from 3 to 8 mm and a length ranging from 5 to 40 mm, or from 15 to 30 mm and a width ranging from 5 to 30 mm, or from 8 to 20 mm.

3. A coupling mean according to claim 2, wherein said bar-shaped clip has a thickness of about 5 mm and a length of about 20 mm and a width of about 13 mm.

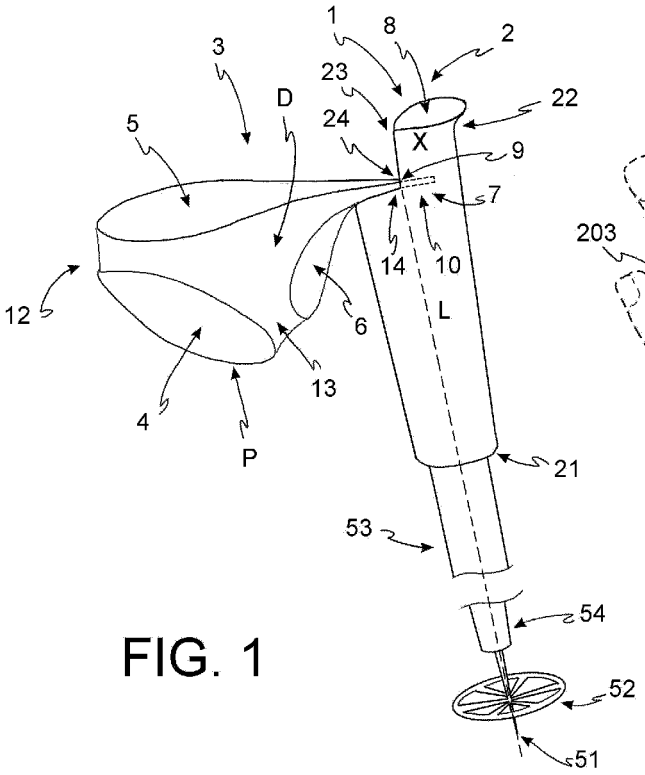
4. A coupling mean according to any one of the claims from 1 to 3, wherein said bar-shaped clip comprises an opening (640) running through it in its thickness.

5. A coupling mean according to claim 4, wherein said opening (640) is circular.

6. A hand strap (3) for sport poles comprising a dorsal portion (D) and a palmar portion (P), said dorsal portion (D) and palmar portion (P) being kept together by at least a first (12), a second (13) and a third (14) connecting portion, said hand strap comprising a tongue (9) to fasten said hand strap to a grip (2) via coupling means (7, 507), said tongue (9) protruding from said hand strap from said third connecting por-

tion (14), **characterised in that** said coupling means are snap connecting elements, wherein said snap connecting element is a bar-shaped clip (507) having a core (511a) which is an extension of the webbing (511) protruding from said hand strap, said core being covered by a cover (507a), preferably a plastic cover, **characterised in that** said cover (507a) is provided on the upper face (507_{up}), on the lower face (507_{low}) and on the terminal side (507_{term}) of said core.

7. A hand strap according to claim 6, wherein said bar-shaped clip (507) has a thickness ranging from 1 to 15 mm, or ranging from 3 to 8 mm, or of about 5 mm and a length ranging from 5 to 40 mm, or from 15 to 30 mm, or of about 20 mm and a width ranging from 5 to 30 mm, or from 8 to 20 mm, or of about 13 mm.


1
8
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23
D
22
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14
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6
L
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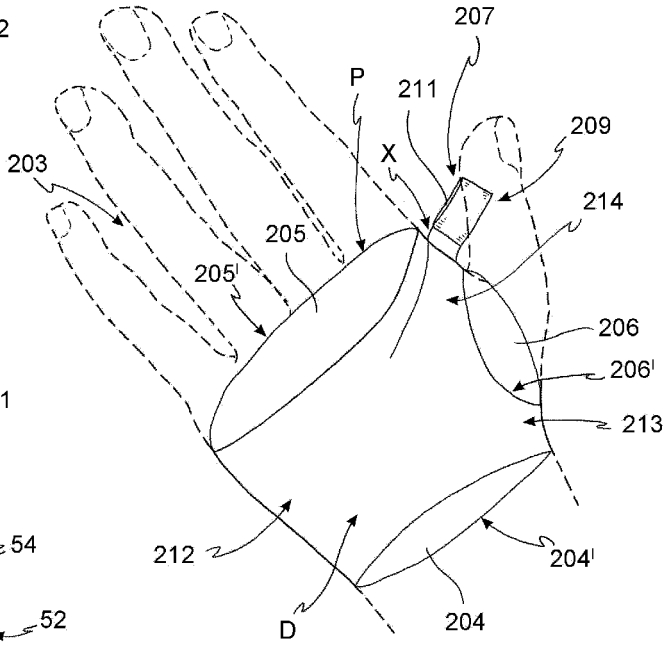
4
P
21
53
54
52
51

FIG. 1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209
203
X
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205
205'
206
206'
213
212
204'
D
204

FIG. 2

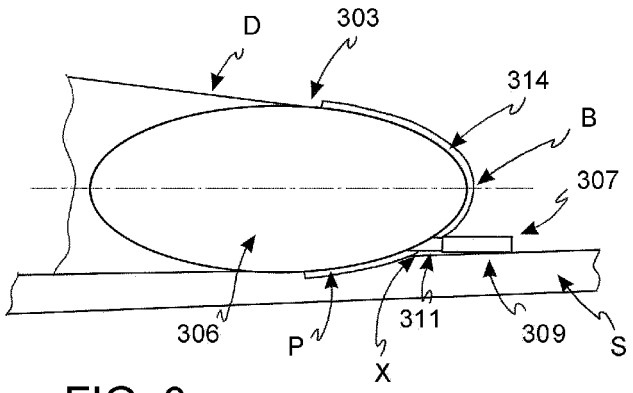

FIG. 3

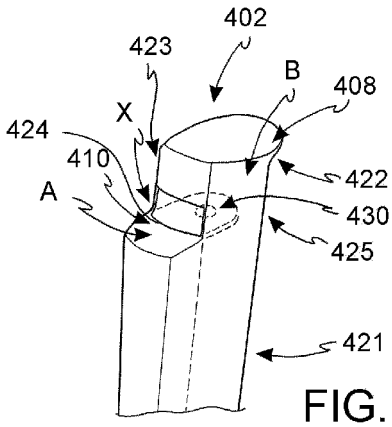

FIG. 4

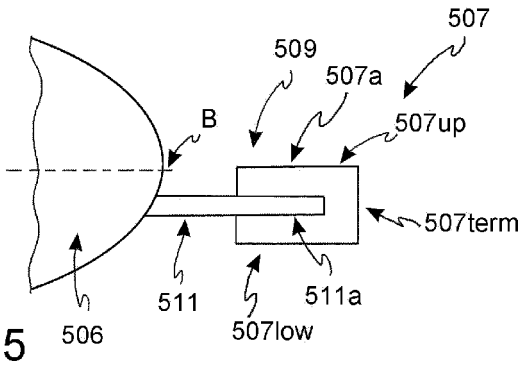

FIG. 5

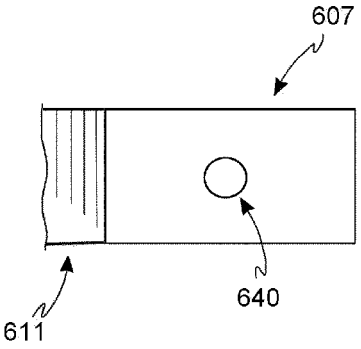

FIG. 6

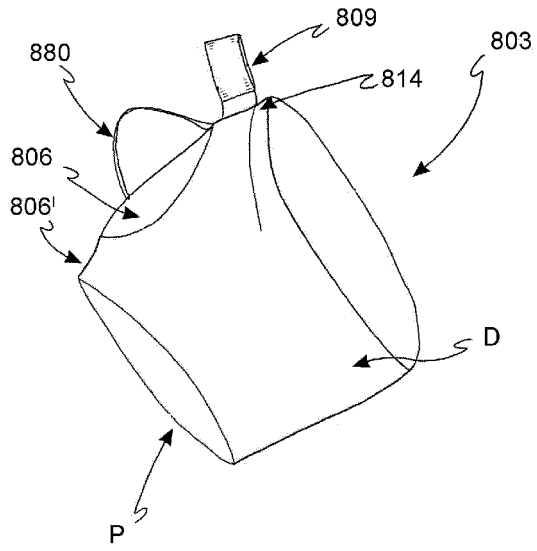

FIG. 8

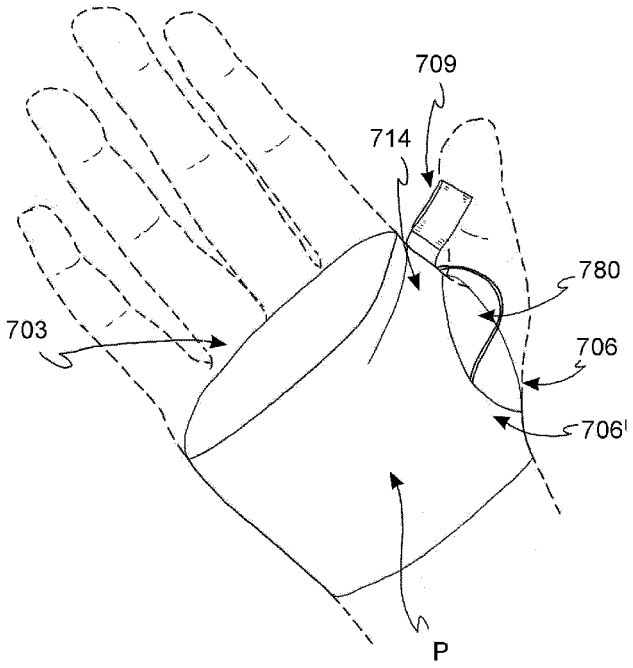

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 14 18 0215

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	DE 20 2006 011105 U1 (LEKISPORT AG [CH]) 5 October 2006 (2006-10-05) * paragraph [0034]; figure * *	1-3,6,7 4,5	INV. A63C11/22
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 December 2014	Haller, E

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 18 0215

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17-12-2014

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