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(54) **Headguard with temple protecting scallop that does not cover the ears**

(57) The present claimed invention comprises left and right side bands with first and second side scallops. The side scallops are positioned, configured and ar-

ranged to protectively cover the left and right temple portions of a human head respectively, without covering the ears, when the headguard is worn on the head.

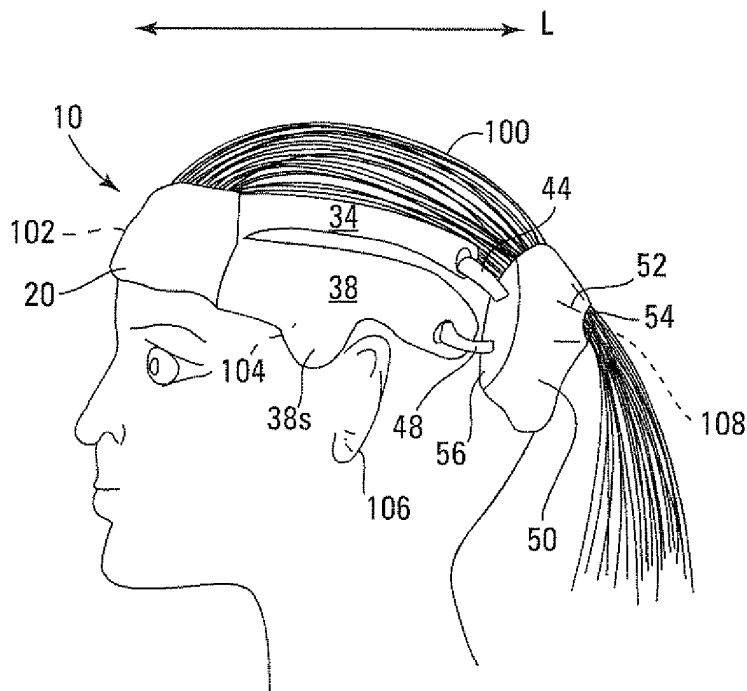


Fig. 2

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Description

BACKGROUND

[0001] The prior art contains many examples of protective headguard systems. The prior art describes a variety of fit and retention systems.

[0002] Headguard fit and retention systems are intended to keep the headgear on the head during use, maintain fit and comfort while in use, protect desired areas during use, and allow the user to easily put on and take off the headgear when desired.

[0003] Fit and retention systems must deal with the basic characteristics of the human head: the generally spheroidal shape; the neck; and the various features such as the face, ears, frontal bone, occipital bone, or the parietal eminences.

[0004] Protective helmets use various means to improve retention and fit. For those with hard and stiff shells, compressible padding, padding inserts, adjustable suspension are some of the means by which different head sizes can be accommodated. Football, hockey, bicycle helmets, and construction hard hats would fall into this category. For headgear with soft flexible shells, such as the headgear used in boxing, the martial arts, or soccer, the shape of the entire piece of headgear can be altered with, for example, adjustment straps to help conform it to the shape of the head.

[0005] In many instances, however, additional retention means such as chinstraps become necessary. Chinstraps typically attach near the edges of the helmet close to the ears and either pass under the chin or over the chin. A fastening system such as a buckle or snap allows the user to fasten and unfasten the chinstrap.

[0006] Various means have been attempted to improve fit and retention to overcome the shortcomings of systems that rely primarily on the chinstrap. Doing so often requires balancing fit, retention, and comfort. With almost any headgear, retention can be improved by simply making the headgear fit tighter. For headgear such as knit winter hats or winter headbands this does not typically pose a problem. A knit winter hat can fit relatively tight without causing discomfort. The lightness, elasticity, and conformability of such headgear are likely reasons for this.

[0007] For many kinds of protective headgear, however, creating a tighter fit merely results in discomfort. An American football helmet with a tight fit can be very uncomfortable. The bulk, inelasticity of the headgear structure, and the pressure points created where padding is compressed to fit variations on the head's surface could be causes for this.

[0008] Alternatives to simply tightening the fit have been developed. Many bicycle helmets, for example, have devices that cradle the occipital bone. These systems are not intended to eliminate the chinstrap but are intended to prevent minor shifts during normal use and to reserve the chinstrap for events such as accidents.

These systems rely on a retention system that applies pressure to selected points on the head. In the case of the bicycle helmets with the occipital cradle, what amounts to a triangular retention system is created. In this system pressure is applied to a set of points below the occipital bone, points above the occipital bone, and points approximately in the middle of the forehead. However, these systems still rely on a chinstrap for retention purposes. Therefore there is still a pressure point under the chin.

[0009] United States Patent No. 5,806,535 to Becker describes a head band with upper and lower bands continuously interconnecting along an entire circumference of a head.

[0010] International Patent No. PCT/KR03/001691 to Kim describes a head band with upper and lower bands episodically continuously interconnecting along an entire circumference of a head.

[0011] United States Patent No. 6,397,399 to Lampe et al. teaches padding enclosed in a fabric covering. The fabric covering stretches to conform the padding to the head.

[0012] United States Patent Nos. 6,266,827 and 6,349,416 to Lampe et al reveal fit and retention systems with adjustment straps located in positions other than those where chinstraps would typically be located. Unlike a baseball cap, these devices may have two or more dependent circular lines of retention created by ribs which are fastened together in an overlapping position to conform to a human head.

SUMMARY OF THE INVENTION

[0013] The present claimed invention comprises left and right side bands with first and second side scallops. The side scallops are positioned, configured and arranged to protectively cover the left and right temple portions of a human head respectively, without covering the ears, when the headguard is worn on the head.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a front perspective view of a first embodiment of the present invention when laid flat.

[0015] FIG. 2 is a side elevation view of the invention depicted in FIG. 1 worn on a human head.

[0016] FIG. 3 is a front perspective view of a second embodiment of the present invention when laid flat.

[0017] FIG. 4 is a side elevation view of the invention depicted in FIG. 3 worn on a human head.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Nomenclature

[0018]

10	Headguard (First Embodiment)
20	Front Pad
30	Bands
32	Left Upper Band
34	Right Upper Band
36	Left Lower Band
36s	Left Scallop
38	Right Lower Band
38s	Right Scallop
39	Hook and Loop Tape
39a	Hook Portion of Hook and Loop Tape
39b	Loop Portion of Hook and Loop Tape
40	Adjustment Strap
42	Left Upper Adjustment Strap
44	Right Upper Adjustment Strap
46	Left Lower Adjustment Strap
48	Right Lower Adjustment Strap
50	Rear Pad
51	Interior Surface
52	Dimple
53	Exterior Surface
54	Channel
56	First Attachment Area
57	Second Attachment Area
100	Human Head
102	Forehead
104	Temple Area
106	Ear
108	Occipital Bone
200	Headguard (Second Embodiment)
220	Front Pad
236	Left Band
236s	Left Scallop
238	Right Band
238s	Right Scallop
239	Hook and Loop Tape
239a	Hook Portion of Hook and Loop Tape
239b	Loop Portion of Hook and Loop Tape
240	Adjustment Strap
246	Left Adjustment Strap
248	Right Adjustment Strap
250	Rear Pad
251	Interior Surface
252	Dimple
253	Exterior Surface
254	Channel
256	First Attachment Area
257	Second Attachment Area
T	Longitudinal Line
L	Lateral Line
P	Pad Thickness Line

Construction

[0019] The present claimed invention is intended to improve protection of the temple area 104 of a human head 100 with an athletic headguard 10. The shape of the human head 100, above the eye brows, is basically

a cone. When any flat object, such as a headband or headguard 10, is wrapped around the head 100 it has a tendency to "slip or slide" upward exposing the temple area 104 of the human head 100. A straight edged headband cannot protect the temple area 104 without covering the ears 106 which would muffle sounds and communication. The temple protecting headguard 10 can be used for many purposes. For example, uses could include soccer or other activities where it is necessary to protect the temple area 104 of a human head 100 from impact of a ball or player. A lightweight, well-ventilated, snug fitting, and securely affixed headguard 10 to protect the temple area 104 is desirable.

15 First Embodiment

[0020] The first embodiment of the present invention, depicted in Figs. 1 and 2, is a headguard 10 comprising a front pad 20, a rear pad 50, and left and right, upper and lower independently adjustable bands 32, 34, 36 and 20 38 (collectively bands 30) and left and right scallops 36s and 38s on the left and right lower bands 36 and 38 respectively. As shown in Fig. 1, the front pad 20 can be oriented with a lateral line L and a longitudinal line T that is perpendicular to line L. The length of the front pad 20 25 is the maximum dimension of the front pad 20 measured parallel to the lateral line L. The width of the front pad 20 is the maximum dimension measured parallel to the longitudinal centerline T in the longitudinal direction. The thickness of the headguard 10 is the maximum dimension 30 measured parallel to the line P.

[0021] The bands 30 extend laterally from the front pad 20 and wrap around the head 100. When measuring from the longitudinally extending center line T which bisects the front pad 20, the upper bands 32 and 34 are a shorter 35 lateral length than the lower bands 36 and 38. Left and right scallops 36s and 38s extend longitudinally downward from the left and right lower bands 36 and 38 respectively, and are positioned to protectively cover the right and left temple areas 104 without covering the ears 40 106 when the headguard 10 is worn.

[0022] Each of the four bands 30 are independently adjustable from each other. This allows a user to customize the length of all the bands 30 in order to position 45 the left and right scallops 36s and 38s as desired and secure the headband 10 comfortably upon a human head 100.

[0023] The left and right upper bands 32 and 34 will wrap around a human head 100 and connect to the rear 50 pad 50 creating a first tensioned circumferential line of retention. The headguard 10 remains flush against the head 100 along the first line of retention. A second tensioned circumferential line of retention is created when the left and right lower bands 36 and 38 are secured flush 55 around the head 100. Because the circumference of the first line of retention is smaller than the second line, the headguard 10 remains flush upon the natural conical shape of a human head 100 thus minimizing the amount

of slippage which occurs while wearing the headguard **10**.

[0024] Fig. 2 shows a profile of a human head **100** with a headguard **10** positioned on it. In this embodiment the headguard **10** can encircle the head **100**. The front pad **20** can cover an area from the forehead **102** to a portion of the head **100** above the ears **106**. The rear pad **50** can cover an area primarily on and around the occipital bone **108**. Left and right scallops **36s** and **38s** extends longitudinally from the side of the headguard **10** to protectively cover at least a portion of the right and left temple areas **104** on a human head **100** respectively, without covering the ears **106**. The lower bands **36** and **38** continue to protect the head **100** above the ears **106** without covering the ears **106**. This allows the user to have protection to the critical temple areas **104** without sacrificing the ability to hear caused by coverage of the ears **106** by the headguard **10**.

[0025] The scallops **36s** and **38s** can be made of many different materials. Closed cell foams of various kinds can be preferred for many applications. However, other kinds of foam including open-cell foams can be suitable for some applications. In addition, other forms of padding could be suitable. These could include gel materials. These can often be encased and sealed in stretchable films. Similarly, air or gases could be sealed in pockets (not shown) to provide padding. Finally, fibrous materials can also be used as padding.

[0026] The left and right scallops **36s** and **38s** can also be encased in coverings. The coverings can be made of various kinds of materials such as fabric. For most applications, an elastic and highly breathable material would be most suitable. For example, a fabric such as Spandex® from Du Pont Company could be suitable for many applications. Many other fabrics such as CoolMax® from Invista could also be suitable. CoolMax® is a product that could aid in moisture management. Other materials such as mesh materials could be used alone or in combination with various fabrics.

[0027] Adjustment straps **42**, **44**, **46** and **48** (collectively straps **40**) connect the left and right, upper and lower bands **30** to attachment areas **56** and **57** located on either side of the rear pad **50**. The adjustment straps **40** can be made from an elastic material or stretchable foam to add additional tension to aid in retention of the headguard **10**. Hook and loop tape **39** or a buckle (not shown) connects the adjustment straps **40** to the respective attachment area **56** or **57** on the rear pad **50**. By adjusting the individual adjustment straps **40** all four bands **30** are independently adjustable to optimally fit the headguard **10** onto the human head **100**.

[0028] The rear pad **50** can have a cup shape or eccentric dimple **52** with interior **51** and exterior **53** surfaces to better accommodate a user's occipital lobe **108** to allow the rear pad **50** to be secured flush to the back of the head. The rear pad **50** can also have a channel **54** running through the rear pad **50** to accommodate a user's hair or pony tail to extend through the channel **54** provid-

ing for a more comfortable and securely fitting headguard **10**.

Second Embodiment

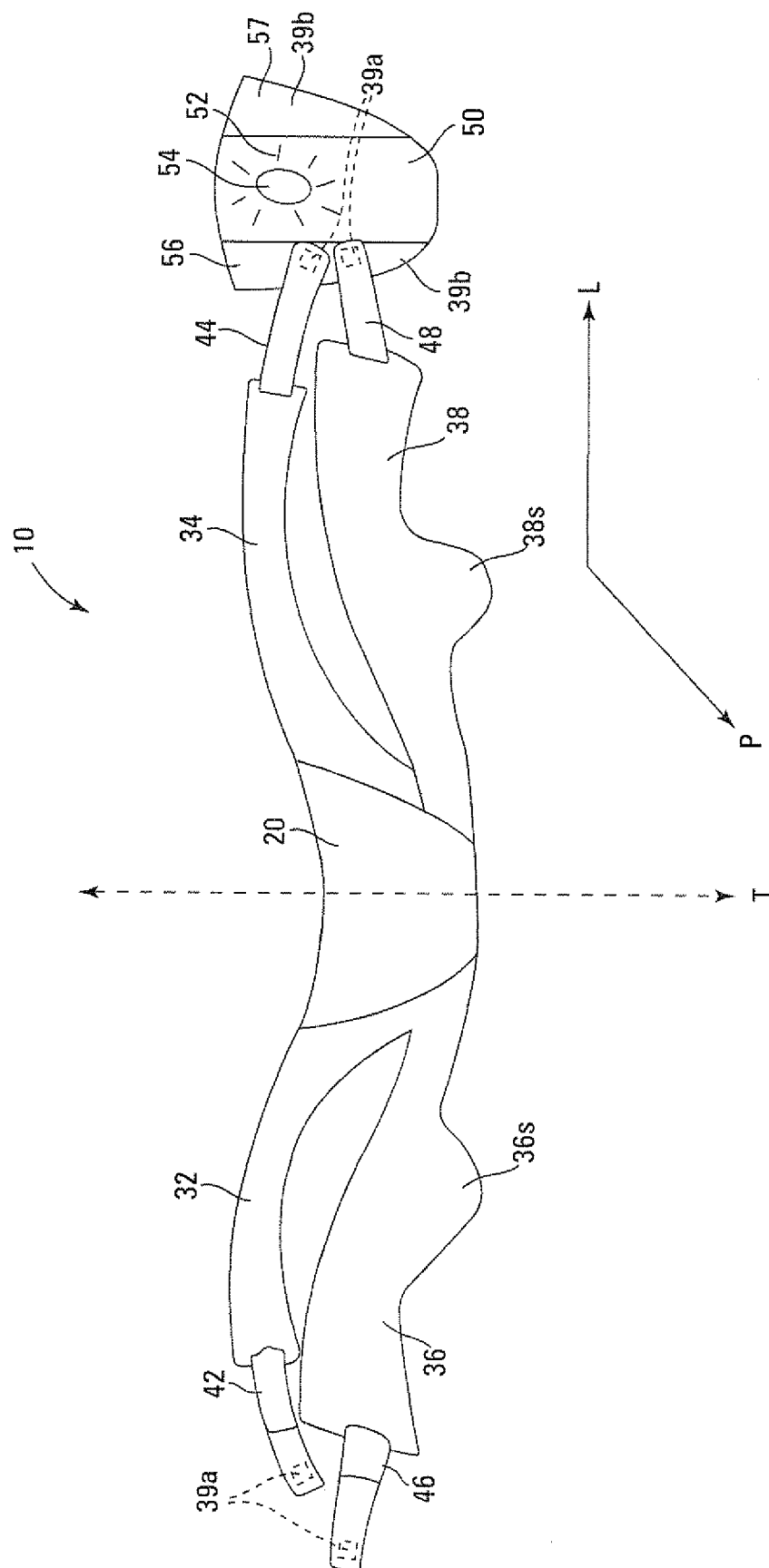
[0029] A second embodiment of the present invention is depicted in Figs. 3 and 4. Many aspects of the second embodiment can resemble those of the first. The second embodiment of the headguard **200** consists of a single set of left and right extending bands **236** and **238** with left and right scallops **36s** and **38s** extend longitudinally downward from the bands **236** and **238** respectively.

[0030] The headguard **200** can function with or without the adjustment straps **246** and **248** as employed in the first embodiment. Without the adjustment straps **246** and **248**, the bands **230** simply attach directly to the rear pad **250**, such as via hook and loop tape **239** with the hook portion **239a** on the distal end of the bands **236** and **238** cooperating with loop portions **239b** covering the attachment areas **256** and **257** on the rear pad **250**. However, stretchability of the headguard **10** could be somewhat more limited without the adjustment straps **246** and **248**. The position of the scallops **36s** and **38s** protectively covering the temple areas **104** while not covering the ears **106** would remain relatively unchanged while the headguard **200** is being expanded or contracted. The left and right scallops **36s** and **38s** would still be positioned, configured and arranged to protectively cover the temple areas **104**.

Claims

1. A protective headguard, comprising left and right side bands with first and second side scallops positioned, configured and arranged to protectively cover the left and right temple portions of a human head respectively, without covering the ears, when the headguard is worn on the head.
2. The headguard of claim 1 wherein the left and right scallops further include a protective padding material.

Fig. 1



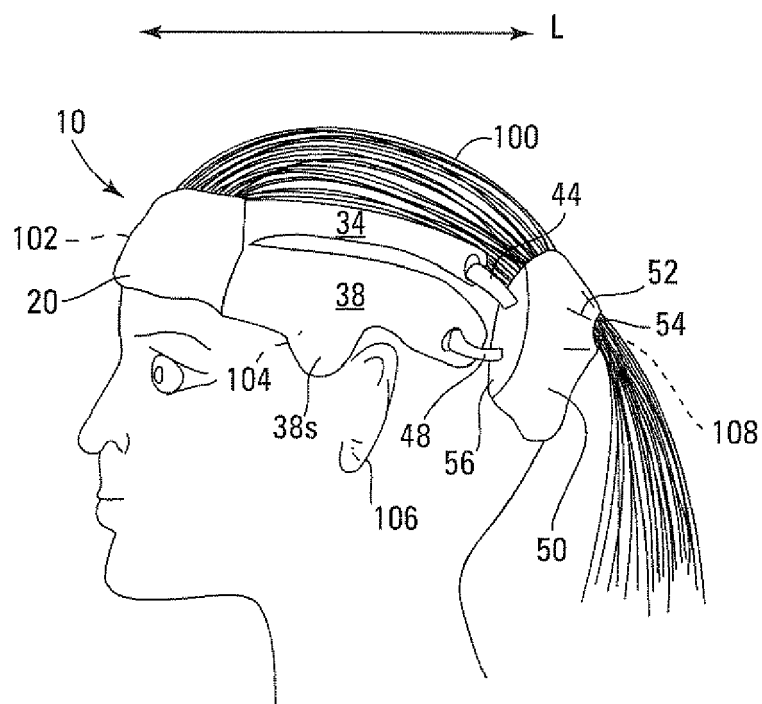


Fig. 2

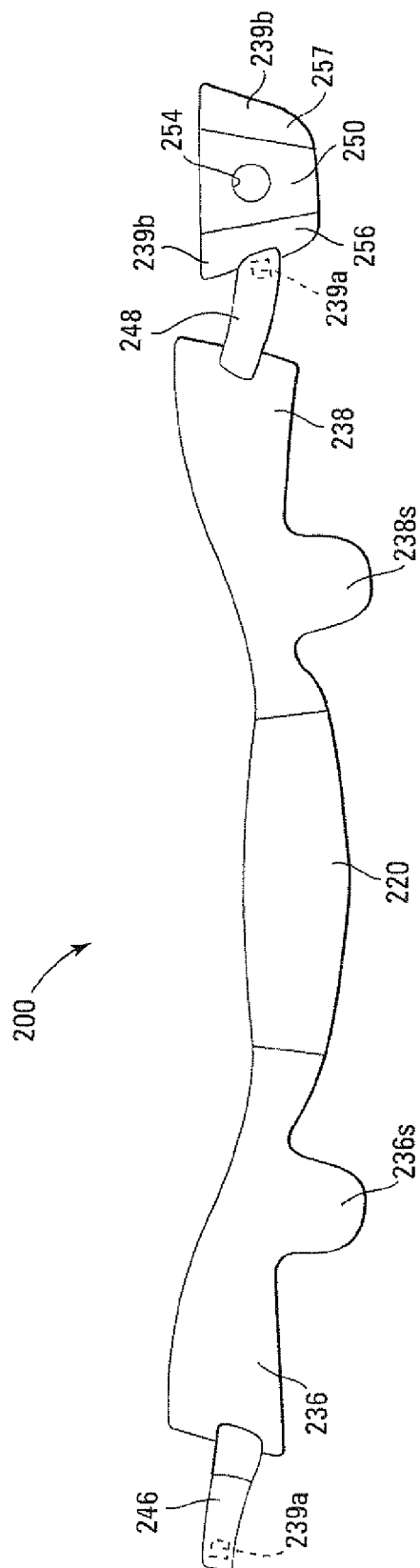


Fig. 3

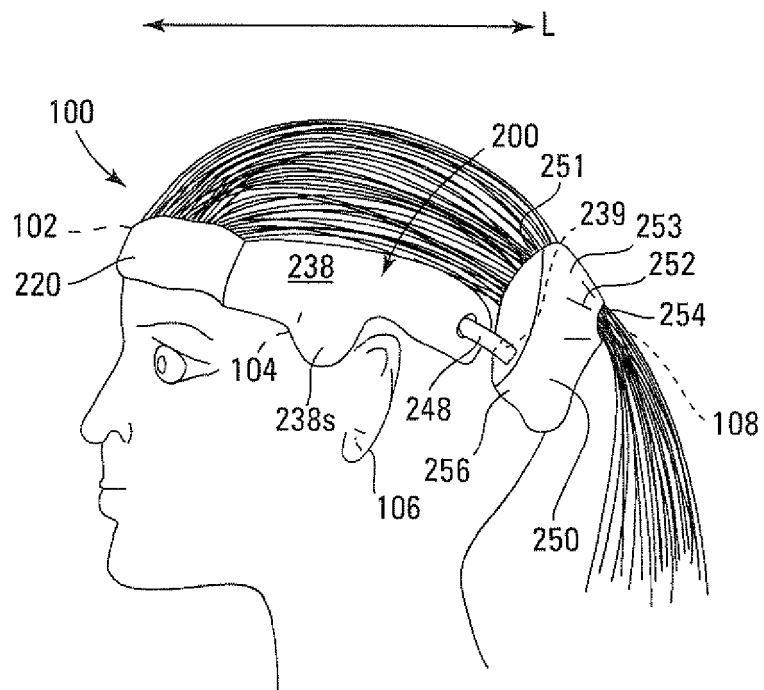


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 4321

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	WO 88/04188 A1 (LIDGREN LARS AAKE ALVAR [SE]) 16 June 1988 (1988-06-16) * page 2, line 10 - page 7, last line; claim 6; figures 1-3 *	1-2	INV. A63B71/10 A42B3/00
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X	GB 2 397 535 A (SATIAN IND CO LTD [TH]) 28 July 2004 (2004-07-28) * page 6, line 8 - line 21; figure 2 *	1-2	
X	WO 2006/022680 A1 (FULL90 SPORTS INC [US]; CLEVELAND WILLIAM K [US]; LAMPE JOHN K [US]; P) 2 March 2006 (2006-03-02) * paragraph [0056] - paragraph [0057]; figure 2 *	1-2	
			TECHNICAL FIELDS SEARCHED (IPC)
			A63B A42B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 January 2010	Examiner Oelschläger, Holger
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 17 4321

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27-01-2010

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