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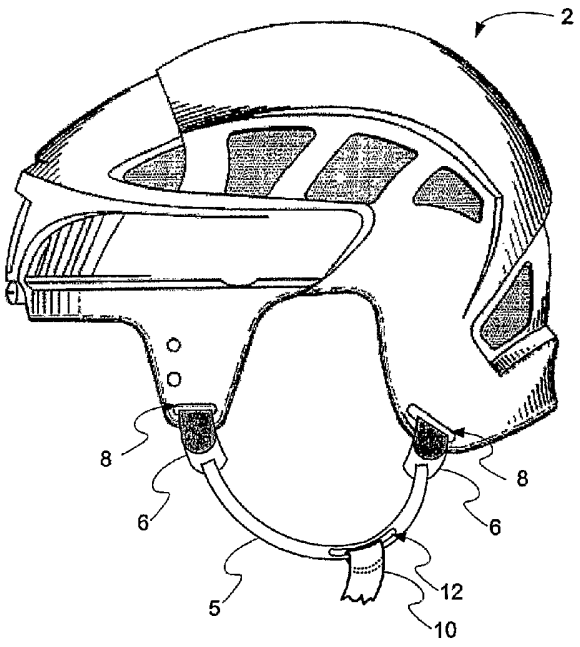
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Published:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HELMET EAR LOOP



(57) Abstract: An ear loop for a helmet and a helmet having the ear loop is described. The ear loop is connectable to a chin strap of the helmet, and allows movement of the chin strap about the ear loop. The ear loop has one or more features for restricting movement of the chin strap along the ear loop to provide some freedom of movement while ensuring that the positioning of the chin strap remains within a desired range.

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HELMET EAR LOOP

[0001] This application claims the benefit of U.S. Provisional Application No. 60/598,423, filed August 4, 2004.

FIELD OF THE INVENTION

[0002] The present invention relates to an ear loop for helmets. More particularly, the invention relates to a sporting helmet ear loop to which a chin strap may be connected.

SUMMARY OF THE INVENTION

[0003] In an aspect of the present invention, there is an ear loop that allows a chin strap to move freely about the ear loop along restricted path, thus allowing the chin strap some freedom of movement while ensuring that its positioning remains within a secure and comfortable range.

[0004] Other and further advantages and features of the invention will be apparent to those skilled in the art from the following detailed description of embodiments thereof, taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The foregoing and other aspects of the invention will become more apparent from the following description of specific embodiments thereof and the accompanying drawings which illustrate, by way of example only, the principles of the invention. In the drawings, where like elements feature like reference numerals (and wherein individual elements bear unique alphabetical suffixes):

[0006] FIG. 1 shows a side view of a helmet with an ear loop according to prior art;

[0007] FIG. 2 shows a blown up view of the ear loop of FIG. 1;

[0008] FIG. 3 shows a side view of a helmet with an of an ear loop according to an embodiment of the present invention;

[0009] FIG. 4 shows a blown up view of the ear loop of FIG. 3;

[0010] FIG. 5 shows an ear loop according to an alternate embodiment of the present invention;

[0011] FIG. 6 shows an ear loop according to another alternate embodiment of the present invention; and

[0012] FIG. 7 shows an ear loop according to yet another alternate embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0013] The description which follows, and the embodiments described therein, are provided by way of illustration of an example, or examples, of particular embodiments of the principles of the present invention. These examples are provided for the purposes of explanation, and not limitation, of those principles and of the invention. In the description, which follows, like parts are marked throughout the specification and the drawings with the same respective reference numerals.

[0014] Referring to FIG. 1, there is shown a prior art sporting helmet 2 having an ear loop 4 and a chin strap 10 (not fully shown). The ear loop 4 is connected to the helmet 2 using connectors 6 going through corresponding helmet slots 8. Alternatively various other connectors or connection methods know to a person skilled in the art may be used as well. Finally, the chin strap 10 is connected to the ear loop 4 by rolling its end around the chin strap 10 and sewing it back unto itself. Alternatively, the chin strap may be attached back unto itself using a pressure button, Velcro or any other such means. Fig. 2 shows a blown up view of the connection of the chin strap 10 to the ear loop 4. It may be seen in FIG. 2 that the chin strap 10 may move freely about the ear loop 4 along a path 11 and, for example, displace itself up to position 10a, which in turn displaces the positioning of the chin strap 10 along and under the wearer's jaw and chin (not shown).

[0015] To prevent excessive displacement of the positioning of a chin strap along an ear loop, the ear loop may be provided with a feature for restricting movement of the chin strap along the ear loop.

[0016] Referring now to FIG. 3, there is shown a sporting helmet 2 having an ear loop 5, according to an embodiment of the present invention, and a chin strap 10 (not fully shown). The ear loop 5 is connected to the helmet 2 using connectors 6 going through corresponding helmet slots 8. Alternatively various other connectors or connection methods know to a person skilled in the art may be used as well. Finally, the chin strap 10 is connected to the ear loop 5 by passing it through ear loop slit 12 and connecting it back unto itself, for example by sewing it. Alternatively, the chin strap may be attached back unto itself using a pressure button, Velcro or any other such means. The chin strap 10 may also use a looped member (not shown) or any other type of connector suitable for connection through the ear loop slit. Fig. 4 shows a blown up view of the connection of the chin strap 10 to the ear loop 5 through ear loop slit 12. It may be seen in FIG. 4 that the chin strap 10 may move freely about the ear loop 5 along restricted path 13, which allows chin strap 10 some freedom of movement while ensuring that its positioning remains within a secure and comfortable range.

[0017] In other embodiments, another feature may be used for restricting movement of a chin strap along an ear loop, as described in some examples below.

[0018] Referring to FIG. 5, an alternate embodiment is shown. Therein, protrusions 24, 26 are provided along ear loop 20 extending outwardly from a surface of ear loop 20. One arrangement, as shown, has protrusions 24, 26 extending downwardly from ear loop 20. Each protrusion may be alternatively located elsewhere on a surface of ear loop 20. Chin strap 22 is connected to ear loop 20 between protrusions 24, 26 in the same manner described above with respect to FIG. 1 and 2. Protrusions 24, 26 may be integral to ear loop 20, or be attachments secured to ear loop 20. In the embodiment, the connection of chin strap 22 to ear loop 20, such as by sewing chin strap 22 onto itself, creates space around ear loop 20 such that chin strap 22 may move along ear loop 20. Protrusions 24, 26 are of a dimension that, in combination the connection of chin strap 22 to ear loop 20, prevents chin strap 22 from moving past protrusions 24, 26 despite the space created by the connection. For the embodiment, chin strap 22 may move freely about ear loop 20 along restricted path 28, to allow chin strap 22 some freedom of movement while protrusions 24, 26 hold it within a desired position range between protrusions 24, 26.

[0019] Referring to FIG. 6, another alternate embodiment is shown. Therein, chin strap 32 is connected to ear loop 20 in the same manner described above with respect to FIG. 1 and 2. Bridge 34 is also provided with ear loop 30. Bridge 34 may be integral to ear loop 30, or be an attachment securable to ear loop 30. In the embodiment, the connection of chin strap 32 to ear loop 30 is between feet 35, 36 of bridge 34 to prevent chin strap 32 from moving past feet 35, 36 of bridge 34. Chin strap 32 may move freely along ear loop 30 along restricted path 38, to allow chin strap 22 some freedom of movement while bridge 34 holds it in place within a desired position range relative to ear loop 30.

[0020] Referring to FIG. 7, yet another alternate embodiment is shown. Therein, chin strap 42 is connected to ear loop 40 in the same manner described above with respect to FIG. 1 and 2. Button 44 protruding from ear loop 40 is provided, and a complementary slit 46 in chin strap 22 is also provided and cooperates with button 44. Slit 46 is dimensioned to cooperate with button 44 such that, when slit 46 is placed over button 44, chin strap 42 may freely move along restricted path 48 of ear loop 40 while chin strap 42 is also held in place within a desired position range relative to ear loop 40. Restricted path 48 is defined by the lateral size of slit 46.

[0021] In other embodiments, strap 42 may be loosely coupled to ear loop 40 by one or more securing straps. Each securing strap is connected at one end to chin strap 42 and at another end to ear loop 40. As such chin strap 42 moves away in a direction from a securing strap's connection at ear loop 40, the securing strap becomes more taut and eventually, when sufficiently taut, prevents chin strap 42 from traveling further in that direction.

[0022] Although the invention has been described with reference to certain specific embodiments, various modifications thereof will be apparent to those skilled in the art without departing from the spirit and scope of the invention as outlined in the claims appended hereto.

CLAIMS:

1. An ear loop for a helmet, the ear loop connectable to a chin strap of the helmet, and allowing movement of the chin strap about the ear loop, the ear loop having a feature for restricting movement of the chin strap along the ear loop.

2. The ear loop of claim 1, wherein the feature comprises a longitudinal slit in the ear loop, and the chin strap passes through the slit, whereby the movement of the chin strap is restricted by lateral ends of the slit.

3. The ear loop of claim 1, wherein the feature comprises first and second protrusions on the ear loop, and the chin strap being connected to the ear loop along a portion of the ear loop between the first and second protrusions.

4. The ear loop of claim 1, wherein the feature comprises a bridge extending from the ear loop, the bridge having first and second feet, and the chin strap being connected to the ear loop along the a portion of the ear loop between the first and second feet.

5. The ear loop of claim 1, wherein the feature comprises a button protruding from the ear loop co-operable with a traverse slit in the chin strap to restrict movement of the chin strap relative to the ear loop.

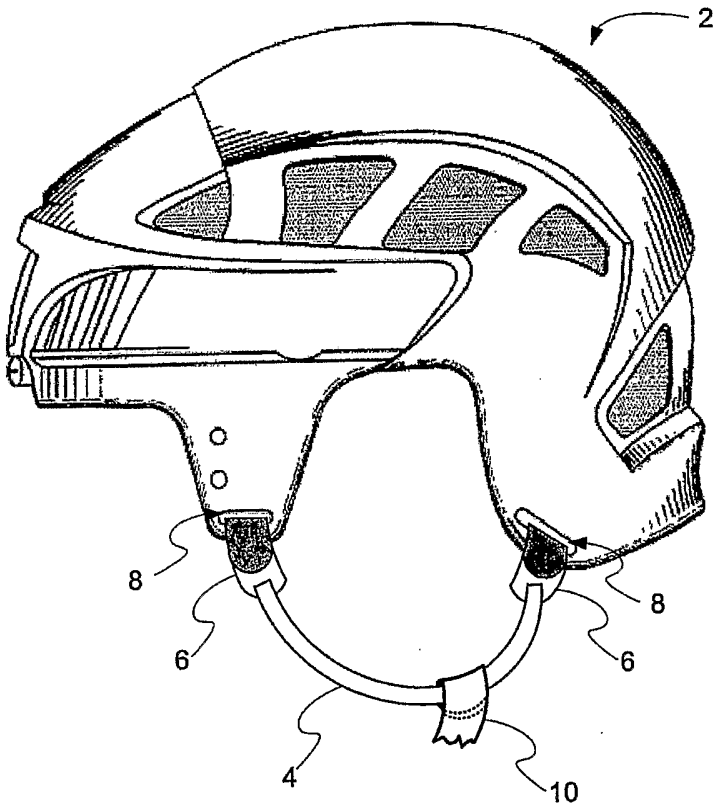


FIG. 1 PRIOR ART

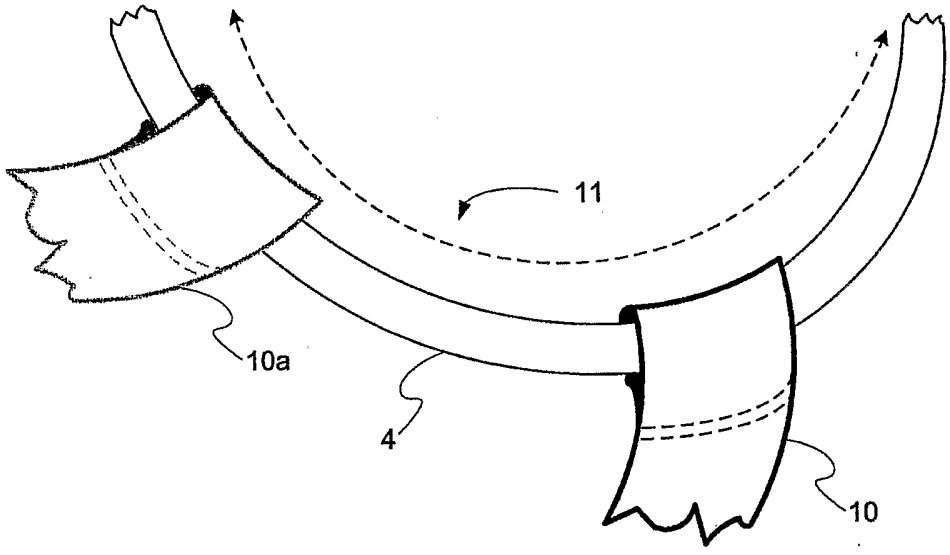


FIG. 2 PRIOR ART

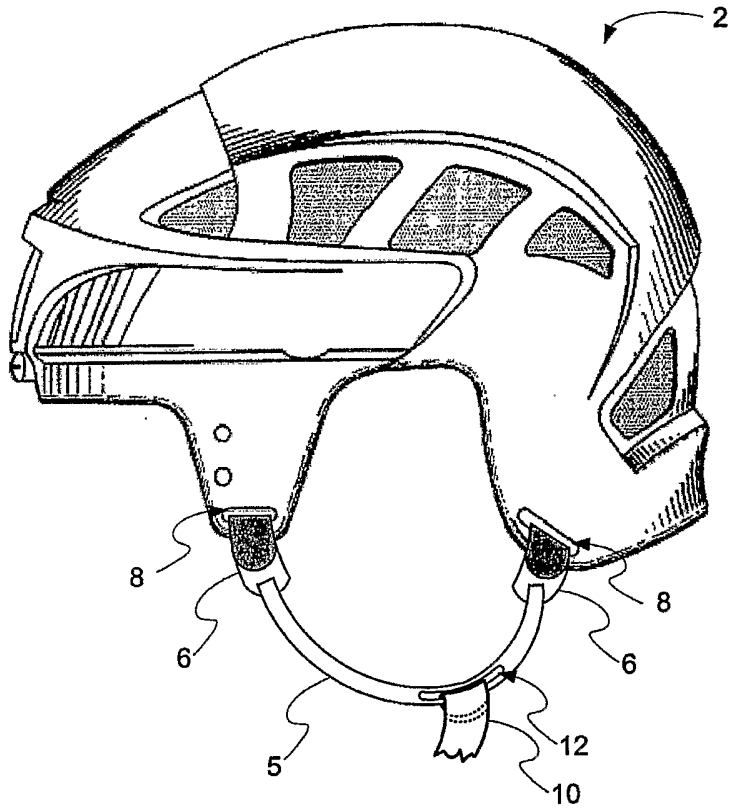


FIG. 3

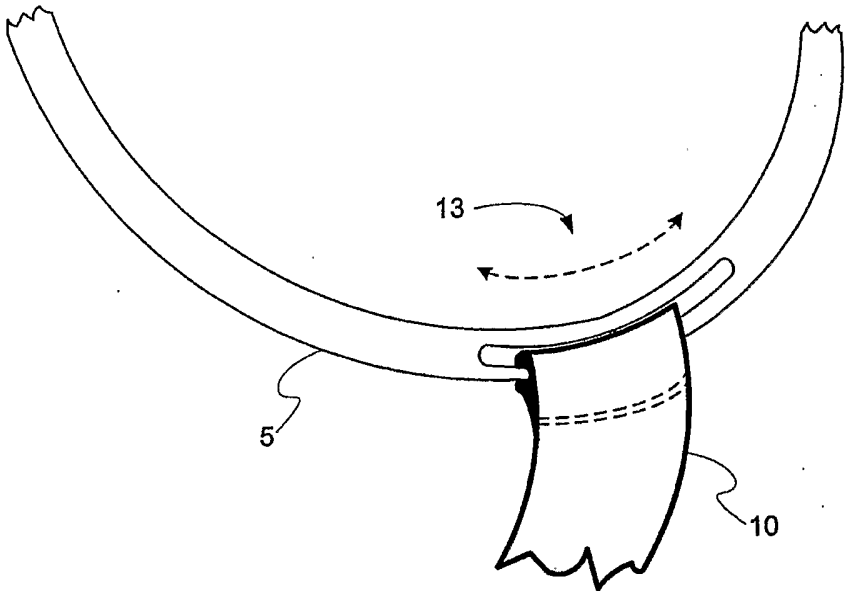


FIG. 4

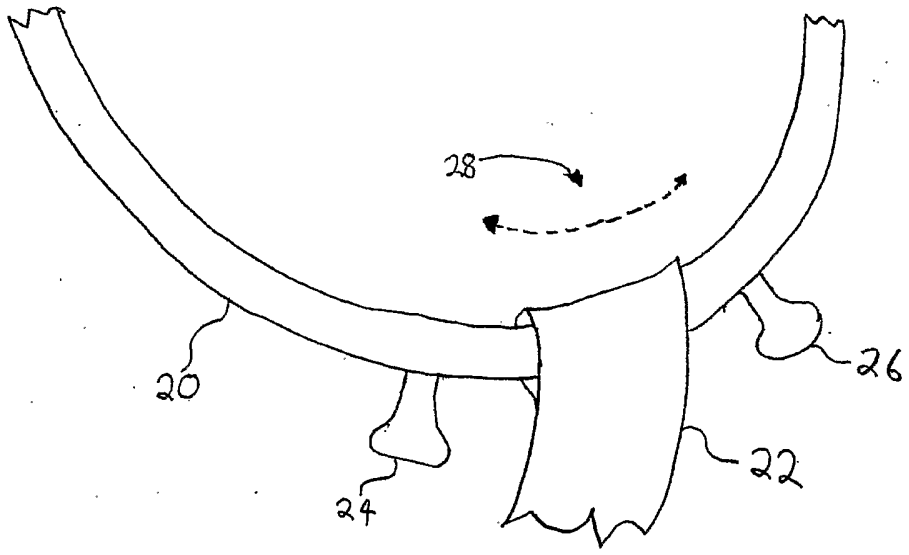


FIG. 5

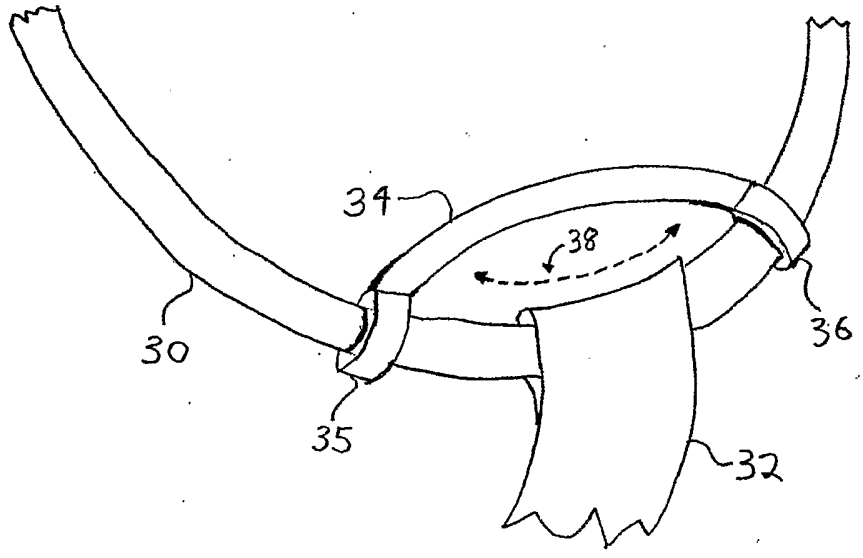


FIG. 6

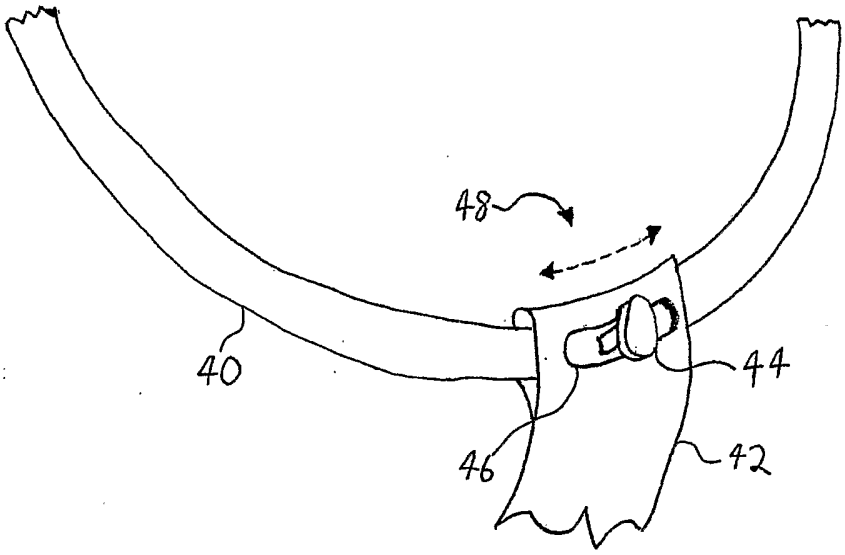


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA2005/001217

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7): A42B 3/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC & ECLA: A42B-3/04; A42B-3/08; A42B-3/16; A42B-7/00 & A63B-71/10 CPC: 2/70.1; 2/73.1 & 2/73.2
USC: 2/421; 2/423 & 2/425

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
WEST, DELPHION & Canadian Patent Database
Keywords: "ear loop"; "ear strap" & "chin strap"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4404690 (FARQUHARSON) 20 September 1983 (20-09-1983) *Figures 2 & 7-9, Column 11, lines 15-27*	1 and 2
X	JP 2001303352 A (WATANABE et al.) 31 October 2001 (31-10-2001) *Whole Document*	1
A	US 2003135914 A1 (RACINE et al.) 24 July 2003 (24-07-2003) *Whole Document*	1-5

[ ] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 September 2005 (21-09-2005)	28 September 2005 (28-09-2005)

Name and mailing address of the ISA/CA	Authorized officer
Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9 Facsimile No.: 001(819)953-2476	Eric Breton (819) 997-5209

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/CA2005/001217

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US4404690	20-09-1983	NONE	
JP2001303352	31-10-2001	NONE	
US2003135914	24-07-2003	CA2365894 A1 CA2414872 A1 EP1321054 A2	21-06-2003 21-06-2003 25-06-2003