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(72) Inventor: **RAMO NÚÑEZ, José del**
E-30510 Yecla, Murcia (ES)

(74) Representative: **Carvajal y Urquijo, Isabel et al**
Clarke, Modet & Co.
Goya 11
28001 Madrid (ES)

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(71) Applicant: **Catlike Sport Components, S.L.**
Pol. Ind. Las Teresas
C/Doctor Trueta
17 - P.O. Box 502
E-30510 Yecla, Murcia (ES)

(54) **HELMET WITH REINFORCEMENT STRUCTURE**

(57) Helmet with reinforcement structure, comprising, at least:
- a helmet body;
- a reinforcement structure (2);

wherein said structure (2) is formed by a plurality of tubes (3) joined together through union means (4); and wherein said structure (2) is integrated in the helmet body.

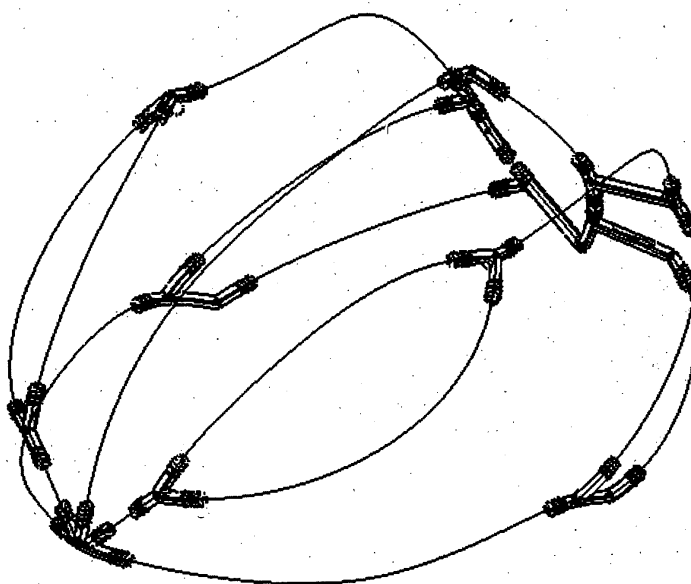


FIG. 1

Description

Object of the invention

[0001] The object of the present invention is to present a new helmet. This new helmet has a reinforcement structure, formed by a plurality of tubes joined together, and which is integrated in the helmet itself.

Background of the invention

[0002] In the current state of the art there are described different reinforcement systems in helmets for sport purpose. Thus, for example, in the Canadian document CA1335027 of the American company *Bell Sports Inc.*, a helmet with reinforcement is described, and more particularly, a helmet made of molded plastic and reinforced against fractures originated in an impact, so that the helmet stays in the user's head. This helmet thus described basically comprises:

- A helmet body made of expanded synthetic resin, which is circular and can be broken in an impact.
- A reinforcement member, extended longitudinally in the lower crown of the helmet, and a plurality of reinforcements, the lower part of which is integrally joined to the crown reinforcement and which, integrated in the helmet body extend in arch between both sides thereof. Likewise, the belts are used to fasten the helmet to the user's chin, which are tied in grooves extending in two tabs originating from the reinforcement of the helmet lower crown.

[0003] This helmet thus designed has different deficiencies in its use, being the main one of them the great fragmentation of the helmet in case of a strong impact, mainly due to the situation and characterization of the reinforcements.

Description of the invention

[0004] In order to lessen, or in its case eliminate the aforementioned problems, the helmet with reinforcement mesh object of the present invention is presented.

[0005] This helmet comprises, at least:

- A helmet body;
- A reinforcement structure, formed by a plurality of tubes joined together;

wherein said plurality of tubes is joined by "Y"-shaped union parts; and where, besides, said tubes can be hollow or solid according to the resistance intended for the helmet.

[0006] With this structure, on the one hand, we attain greater lightness than with those nylon mesh structures typically used in the state of the art. On the other hand, in case of impact, the helmet does not break in several

pieces since the force of impact is softened and distributed along the tubular reinforcement.

Brief description of the drawings

[0007] A series of drawings will be briefly described below for a better understanding of the invention and expressly relating to an embodiment of said invention presented as a non-limiting example thereof.

- Figure 1 shows a perspective view of the reinforcement structure of the helmet, object of the present invention.

Preferred embodiment of the invention

[0008] As it can be seen in the attached figure 1, the helmet with reinforcement structure, object of the present invention patent comprises, at least:

- a helmet body;
- a reinforcement structure (2);

wherein said structure (2) is formed by a plurality of tubes (3) joined together through union means (4), in this practical embodiment, "Y"-shaped parts joining the final ends of the tubes; and wherein said structure (2) is integrated in the helmet body.

Claims

1. Helmet with reinforcement structure, **characterized in that** it comprises, at least:

- a helmet body;
- a reinforcement structure (2);

wherein said structure (2) is formed by a plurality of tubes (3) joined together through union means (4); and wherein said structure (2) is integrated in the helmet body (1).

2. Helmet with reinforcement structure, according to claim 1, **characterized in that** the union means (4) join the ends of the plurality of tubes (3).

3. Helmet with reinforcement structure, according to claim 1, **characterized in that** the tubes (3) are solid.

4. Helmet with reinforcement structure, according to claim 1, **characterized in that** the tubes (3) are hollow.

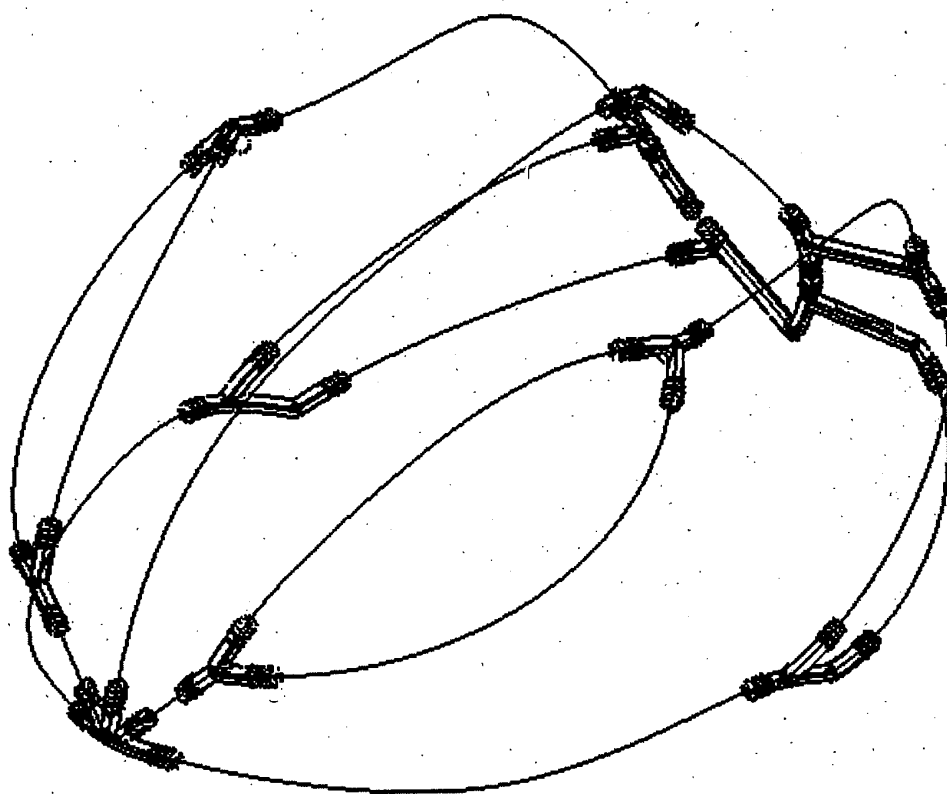


FIG. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2008/000586

A. CLASSIFICATION OF SUBJECT MATTER

A42B 3/06 (2006.01)

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)

A42B+, A63B71/10, A41H1/04

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

INVENES, EPODOC, WPI reforc+, renfor+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5481762 A (GENTES et al.) 09.01.1996, Abstract y figures 2 and 5.	1-4
A	EP 0370696 A2 (BELL BICYCLES INC) 30.05.1990, Abstract and figure 17.	1-4
A	WO 9846098 A1 (9001 6262 QUEBEC INC) 22.10.1998, Abstract and figure 9.	1-4
A	JP 2000014856 A (FUJII KINZOKU KAKO KK) 18.01.2000, Abstract and figures.	1-4
A	GB 2220556 A (YAM LIMITED) 17.01.1990, Abstract and figure 1.	1-4

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.		
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"P" document published prior to the international filing date but later than the priority date claimed		
	"&"	document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/
O.E.P.M.Paseo de la Castellana, 75 28071 Madrid, España.
Facsimile No. 34 91 3495304

Authorized officer

A. Martín Moronta

Telephone No. +34 91 349 53 77

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2008/000586

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US 5481762 A	09.01.1996	US 5477563 A	26.12.1995
EP 0370696 A	30.05.1990	CA 2003433 A	21.05.1990
		AU 4533389 A	24.05.1990
		JP 2264008 A	26.10.1990
		US 5099523 A	31.03.1992
		US 5119516 A	09.06.1992
		AU 632298 B	24.12.1992
		US 5269025 A	14.12.1993
		CA 1335027 C	04.04.1995
			04.04.1995
WO 9846098 A	22.10.1998	CA 2284130 A	22.10.1998
		AU 2612597 A	11.11.1998
		EP 0975241 A	02.02.2000
		EP 19970915239	14.04.1997
JP 2000014856 A	18.01.2000	NONE	-----
GB 2220556 A B	17.01.1990	NONE	-----

Form PCT/ISA/210 (patent family annex) (July 2008)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CA 1335027 [0002]