

12 **EUROPEAN PATENT APPLICATION**

21 Application number: 81630050.3

51 Int. Cl.³: **A 42 B 3/00**

22 Date of filing: 26.08.81

30 Priority: 08.09.80 US 185208

43 Date of publication of application:
17.03.82 Bulletin 82/11

88 Date of deferred publication of search report: 24.03.82

84 Designated Contracting States:
AT BE CH DE FR GB IT LI NL SE

71 Applicant: **A-T-O Inc.**
4420 Sherwin Road
Willoughby, Ohio 44094(US)

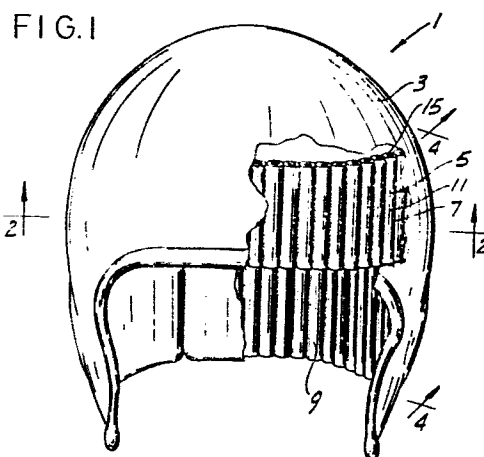
72 Inventor: **Mitchell, Hal D.**
4420 Sherwin Road
Willoughby Ohio 44094(US)

72 Inventor: **Rust, David C.**
4420 Sherwin Road
Willoughby Ohio 44094(US)

74 Representative: **Schmitz, Jean-Marie et al.**
Office Denemeyer S.à.r.l. 21-25 Allée Scheffer P.O. Box
41
Luxembourg(LU)

54 **Shock attenuation system for headgear.**

57 A shock attenuation system for headgear having an outer protective shell (13), the system comprising a liner (7) adapted to be secured to the internal surface of the shell, the liner (7) comprising a series of tubes (15) of elastomeric material extending with their axes generally parallel to the internal surface of the shell, and generally parallel to one another. Each tube (15) is open at an end thereof and is elastically deformable under loads applied against the side of the tube, whereby, with the headgear worn by a wearer and upon application of an impact load to the headgear, the tubes (15) in the area of impact deform elastically under the applied load and attenuate the shock upon the wearer from the applied load.





European Patent
Office

EUROPEAN SEARCH REPORT

0047712

Application number

EP 81 63 0050

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P	DE - A - 2 938 355 (A + R FAHRZEUGE UND SICHERHEITSTECHNIK) * page 6, paragraphs 2-4; page 7, paragraphs 1,2; page 10; page 11, paragraphs 1,2; claims 1-5; figures 1-3 *	1-4,8-10	A 42 B 3/00
P	US - A - 4 223 409 (LEE) * column 1, lines 33-40; column 2, lines 6-20; claims; figures *	1,2,8-10	TECHNICAL FIELDS SEARCHED (Int. Cl.)
	US - A - 3 829 900 (MARANGONI) * the entire document *	1,3,7,10	A 42 B
	US - A - 1 652 776 (GALANIS) * page 1, lines 1-26; page 2, lines 32-63; claims 5,8; figures 3,4 *	1-3,6,10	
	US - A - 3 186 004 (CARLINI) * the entire document *	1,2,8,10	
D	US - A - 3 600 714 (CADE et al.) * the entire document *	1,2,8,10	CATEGORY OF CITED DOCUMENTS
D	US - A - 3 877 076 (SUMMERS et al.) * the entire document *	1-4,6,8,10	X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
	US - A - 2 585 937 (JOHNSON et al.) * column 4, lines 6-19; claims 1, 2; figures 1,5,7 *	1-4,6,9,10	& member of the same patent family. corresponding document
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	19-11-1981	BOURSEAU	

0047712



European Patent
Office

EUROPEAN SEARCH REPORT

Application number

EP 81 63 0050

-2-

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>US - A - 4 133 055</u> (ZEBUHR) * claims 1-4; figure 1 * --- <u>FR - A - 2 375 840</u> (GYORY) * claims * --- <u>GB - A - 1 503 483</u> (BOTHWELL) * page 3, lines 109-130; page 4, lines 1-26; page 4, lines 124-130; page 5, lines 1-11; claims 1,13,14 * --- <u>DE - U - 7 829 829</u> (RICHTER) * page 5, paragraph 3, lines 4-9 * -----	7 1,2,7 1-3,10 1	TECHNICAL FIELDS SEARCHED (Int. Cl.)