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(54) **Helmet Configuration.**

(57) Helmet configuration, comprising a helmet (2) having an inside helmet structure (3) arranged to enclose the helmet user's cranium, as well as a chin strap (4) arranged to extend from both sides of the helmet towards the helmet user's chin. The helmet configuration, moreover, comprises ear muffs (5) arranged for covering at

least part of the helmet user's ears (6), wherein the ear muffs are arranged to be releasably connected to the inside helmet structure and to the chin strap during use of the helmet. Preferably, each ear muff (5) includes protrusive parts (7, 8, 9) arranged to extend under the inside helmet structure and chin strap respectively during use of the helmet.

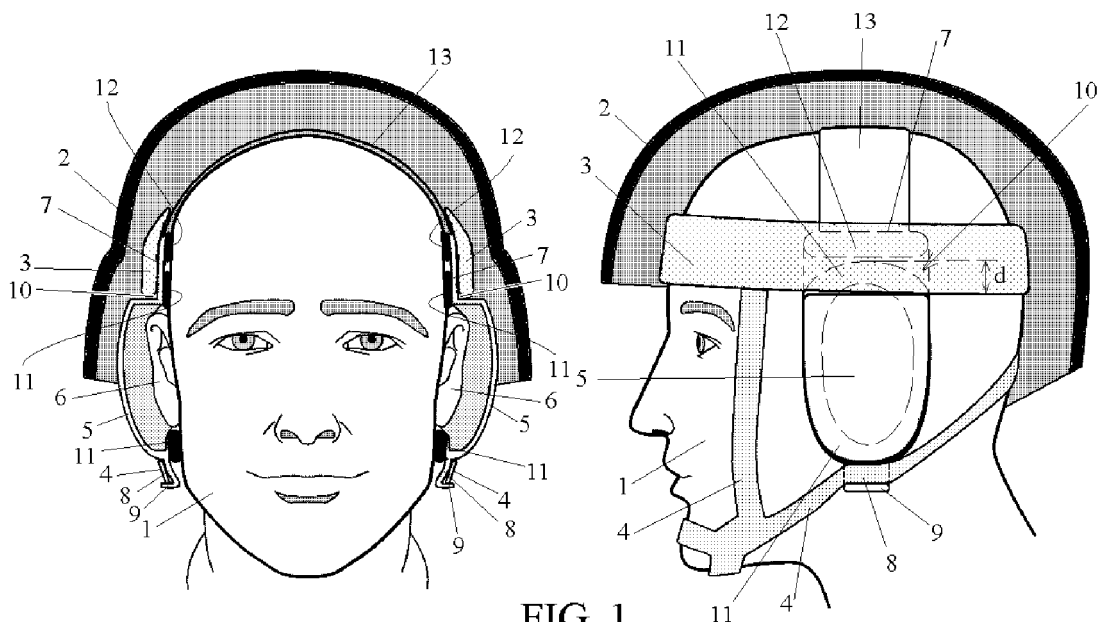


FIG. 1

Description

[0001] The present invention refers to a (military) helmet configuration, comprising a helmet shell which covers the user's ears partly or completely, having an inside helmet structure arranged to enclose the helmet user's cranium, as well as a chin strap arranged to extend from both sides of the helmet towards the helmet user's chin.

[0002] Such helmets are of general knowledge. A disadvantage of the known helmet interior structures is that there is no or only limited space for receiving ear muffs, which are provided for protection the user's ears against high sound levels, and which may -instead or additionally- include earphones for communication purposes. A particular problem is that the ear muffs need to be held upon/over the ears under a certain pressure towards the ears for sealing the ear muffs, providing well hearing protection. Known configurations use a separate headset, comprising a bracket and ear muffs at both sides of it. The biggest disadvantage of wearing a helmet in conjunction with ear muffs is that the location on the head directly above the ears is claimed as a support point for the helmet interior as well as a sealing surface for the ear-muffs. With current ear muff designs those two functions can not be combined, without decreasing the helmet stability or causing sound leakage. An other disadvantageous is that the head strap and/or foam pads (forming the inside helmet structure) of the helmet has to be worn over the bracket of the headset, which is not optimal for the fit and stability of the helmet and it is less convenient for the helmet user due to pressure points on the skull. Besides, if a user wants to put on or put off the existing headsets, first the helmet has to be put of, leaving the head unprotected.

[0003] One aim of the present invention is to provide a helmet configuration including a more compatible set of ear muffs.

[0004] Another aim is to provide enhanced stability of the helmet by providing that the helmet-via its head strap-rests on the whole cranium of its user without any disruption by a headset bracket.

[0005] Yet another aim is to provide that the ear muff can applied and removed easily, without the need for putting off the helmet.

[0006] According to the invention a helmet configuration is provided, comprising a helmet shell, an inside helmet structure, attached to the helmet shell and arranged to enclose the helmet user's cranium, and a chin strap, arranged to extend from both sides of the helmet towards the helmet user's chin, the helmet configuration, moreover, comprising ear muffs arranged for mainly covering the helmet user's ears, wherein said ear muffs are arranged to be in releasable contact with said inside helmet structure and the chin strap during use of the helmet.

[0007] In a preferred embodiment each ear muff includes protrusive parts arranged to extend under said inside helmet structure and chin strap respectively during use of the helmet.

[0008] Preferably, the top side of the ear muff includes a recessed portion, arranged for receiving the inside helmet structure of the helmet, providing that a (soft) seal provided on the ear muffs outer edge facing the user, will cover the area around the user's ear. This way a good seal and a support point can be achieved.

[0009] Hereinafter a preferred embodiment of the helmet configuration and in particular of the ear muffs will be elucidated with reference to some figures, wherein

Figure 1 shows a preferred embodiment of the helmet configuration;

Figure 2 shows a preferred embodiment of the ear muff.

[0010] Figure 1 shows the head of a user 1, wearing a helmet configuration including a helmet shell 2, a head strap 3 connected (not shown) to the shell 2, part of an inside helmet structure which is arranged to enclose the helmet user's cranium, and a chin strap 4 which is connected to the head strap 3 at three or four connection points, which chin strap 4 further rounds the user's chin. The chin strap 4 may include connecting and or length adjustment means, e.g. buckles, Velcro closures or similar (not shown).

[0011] Ear muffs 5 are provided, arranged for covering the helmet user's ears 6. The ear muffs 5 are arranged to be releasably connected to the head strap 3 and to the chin strap 4 by means of upper protrusive parts 7 arranged to extend under the head strap 3 and bottom protrusive parts 8 arranged to extend under the chin strap 4 during use of the helmet. Bottom parts 8 include a transverse area 9 for holding the chin strap 4.

[0012] In this way the helmet configuration includes a compatible set of ear muffs, wherein the proper helmet, via its head strap 3, rests on the whole cranium of its user without being affected by a headset bracket or something like that. The ear muffs 5 can applied and removed easily, without the need for putting off the helmet, viz. by removing the chin straps 4 from the ear muff parts 8 and sliding then the ear muffs 5 downward.

[0013] The top of the ear muff housing 5 includes a recessed portion 10 which is arranged for receiving the head strap 3 or foam pads (not shown) of the helmet 2 and which provides that a soft seal 11, provided on the ear muffs outer edge facing the user 1, will cover well the area around the user's ear. This way a good seal and a support point can be achieved. An additional cushion 12 is provided between the upper part of the protrusion and the user's head.

[0014] As the ear muffs are held together by the helmet inside structure 3 and the chin straps 4, the ear muffs could fall down when the helmet is put off (e.g. for putting on a gas mask). For that reason an auxiliary strap 13 is provided interconnecting both ear muff top portions.

[0015] The ear muff shown in figure 1 is also shown in figure 2 using the same references as in figure 1. More

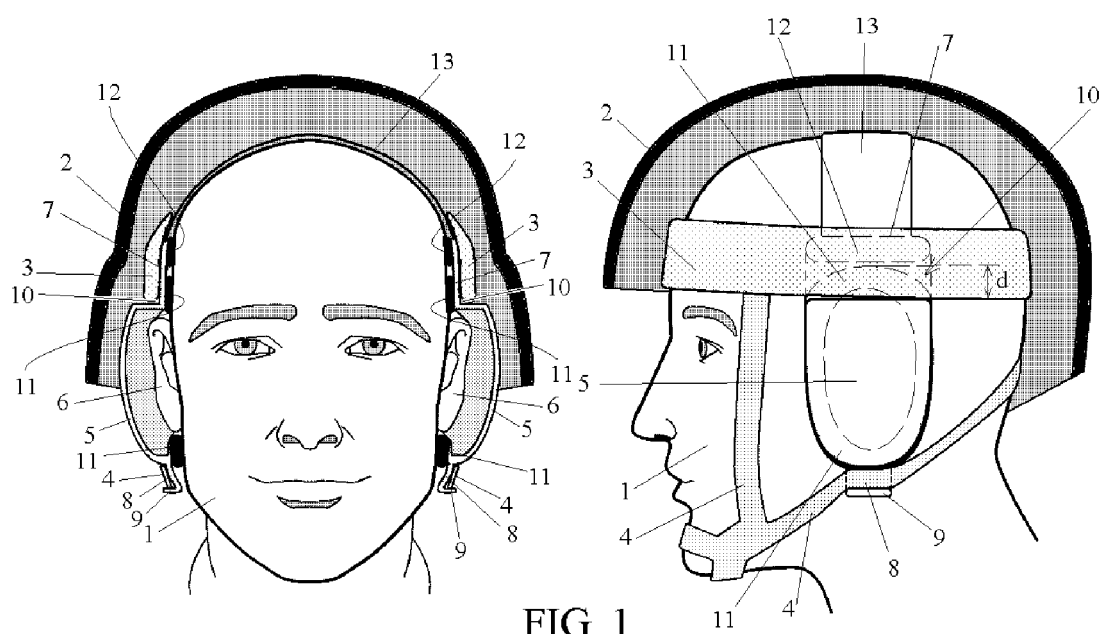
explicitly shown is the soft seal 11, provided on the ear muff's outer edge facing, in operation, the user 1, which seal 11 is intended to cover well the area around the user's ear.

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10. Ear muff according to any of claims 7 - 9, comprising means for attaching at least one auxiliary strap (13), arranged for interconnecting both ear muffs of said helmet configuration.

Claims

1. Helmet configuration, comprising a helmet shell (2), an inside helmet structure (3), attached to the helmet shell and arranged to enclose the helmet user's cranium, and a chin strap (4), arranged to extend from both sides of the helmet towards the helmet user's chin, the helmet configuration, moreover, comprising ear muffs (5) arranged for mainly covering the helmet user's ears (6), wherein said ear muffs are arranged to be in releasable contact with said inside helmet structure (3) and the chin strap (4) during use of the helmet. 10 15 20
2. Helmet configuration according to claim 1, wherein each ear muff includes protrusive parts (7, 8) arranged to extend under said inside helmet structure (3) and chin strap (4) respectively during use of the helmet. 25
3. Helmet configuration according to claim 1 or 2, wherein the top side of the ear muff (5) includes a recessed portion (10), arranged for receiving the inside helmet structure (3) of the helmet (2). 30
4. Helmet configuration according to claim 2 or 3, wherein at least one of said protrusive parts (7, 8) is provided with a cushion (12) facing the user's head. 35
5. Helmet configuration according to any of claims 2 - 4, wherein at least one auxiliary strap (13) is provided, interconnecting both ear muffs.
6. Ear muff (5) arranged to be brought into releasable contact with the inside helmet structure (3) and the chin strap (4) of a helmet configuration according to any of the preceding claims. 40
7. Ear muff according to claim 6, comprising protrusive parts (7, 8) arranged to extend under said inside helmet structure (3) and chin strap (4) respectively during use of the helmet. 45
8. Ear muff according to claim 6 or 7, wherein the top side of the ear muff includes a recessed portion (10), arranged for receiving the inside helmet structure (3) of the helmet (2). 50
9. Ear muff according to claim 7 or 8, wherein at least one of said protrusive parts (7, 8) is provided with a cushion (12) facing the user's head. 55



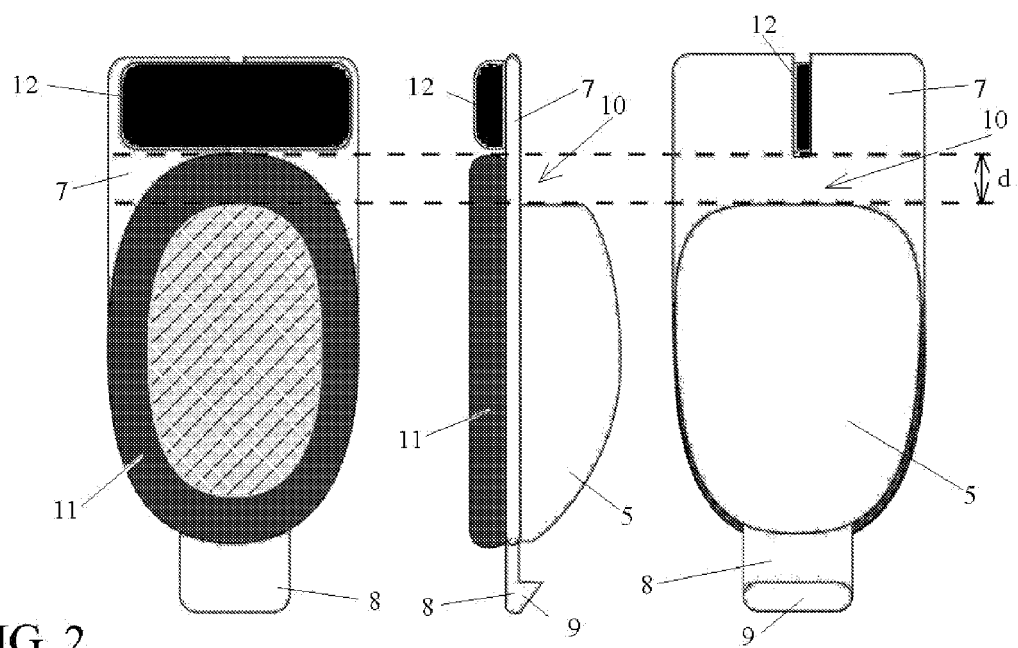


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 09 17 7795

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	JP 2004 068201 A (TECHNO RAIZU KK) 4 March 2004 (2004-03-04) * abstract * * figure 5 *	1-10	INV. A42B3/16
X	WO 2004/089137 A1 (GATH RICKY JAMES [AU]) 21 October 2004 (2004-10-21) * page 2, line 17 - page 3, line 10 * * page 3, line 25 - page 4, line 2 * * page 7, line 26 - page 8, line 11 * * page 10, line 7 - line 13 * * figures 8A-10C *	1,3,4,6, 8,9	
			TECHNICAL FIELDS SEARCHED (IPC)
			A42B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 July 2010	Examiner Guisan, Thierry
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 7795

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-07-2010

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