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(54) Helmet shroud

(57) A helmet shroud (10) equipped with a camera (18), in which the shroud (10) can be releasably attached to a helmet (12) and the body of the shroud (10) is constructed to enable it to break apart upon impact.

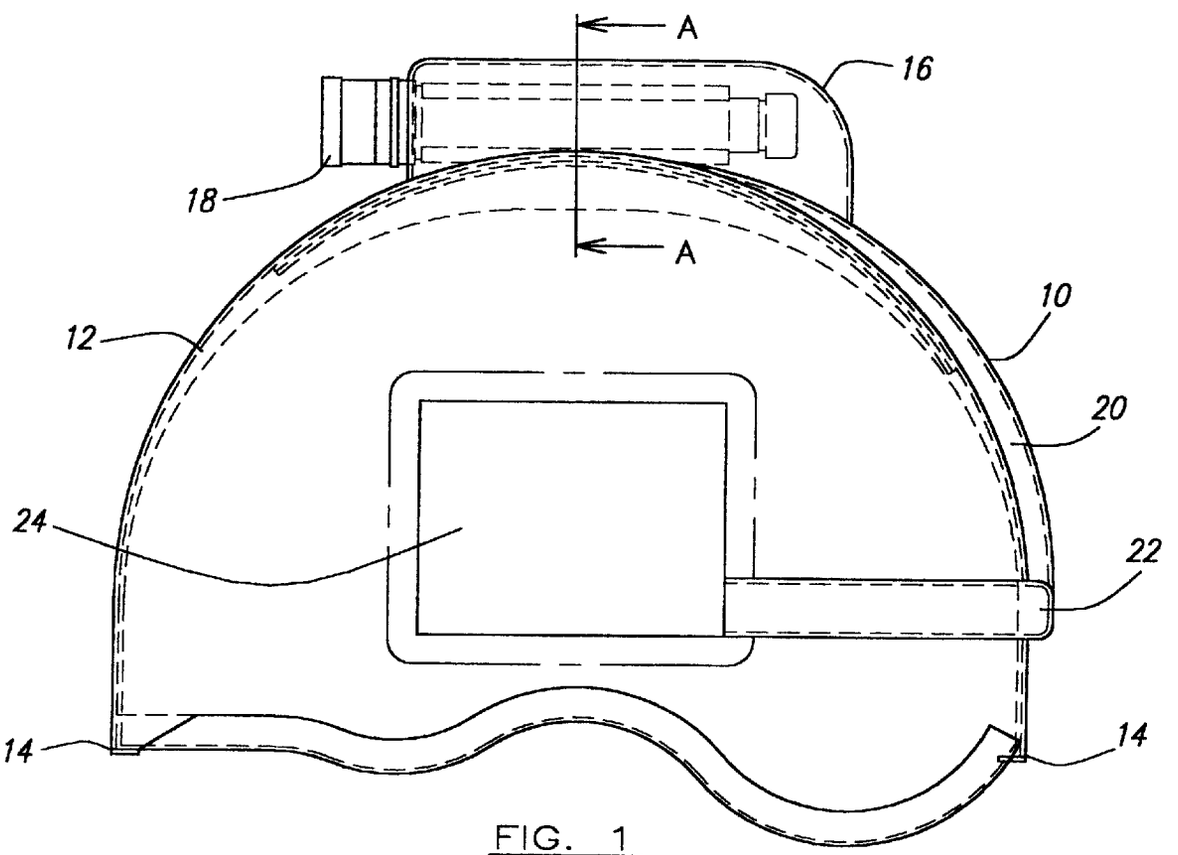

FIG. 1

EP 0 861 607 A1

Description

The present invention relates to a shroud for a helmet equipped with a camera.

In previously proposed systems for mounting cameras to helmets, the camera has normally been attached directly to the helmet. This has resulted in the requirement of a specialist helmet for carrying a camera when covering sports, such as horse-racing, motor-racing, canoeing, rowing, etc. Such helmets have often been difficult to manufacture and expensive to produce. Furthermore, each helmet has to be tailored to the individual wearer, further increasing the cost. In some instances, these helmets have to be produced to meet safety requirements laid down by the sports concerned, such as horse-racing, motor-racing or canoeing. Furthermore, previously proposed helmets have the disadvantage that if the wearer is involved in an accident, the mounting and the camera itself can cause further head injuries to the participant due to the nature of its attachment to the helmet.

It is an aim of the present invention to produce a helmet which addresses these disadvantages and is both cheap to produce and has increased safety for the user.

The present invention is directed to a helmet shroud equipped with a camera, in which the shroud can be releasably attached to a helmet and the body of the shroud is constructed to enable it to break apart upon impact. In a preferred embodiment, the camera is movably attached to the shroud.

Preferably, the shroud is equipped with a space for a separate power pack for the camera. In a preferred embodiment, the shroud is further equipped with a space for a transmitter for the camera. Advantageously, the shroud is equipped with channelling to enable connection of the battery and/or transmitter to the camera.

In a preferred embodiment, the camera is mounted in a housing, which is movably attached to the shroud. In a preferred embodiment, the housing fits in a slot in the shroud which has a uniform curvature. In a further embodiment, the slot is equipped with retaining means to hold the camera housing in one position.

In a preferred embodiment, the attachment means for attaching the shroud to the helmet comprise retaining clips, preferably at the intended front and rear of the helmet.

Preferably, the body of the shroud is made of pre-impregnated resin glass fibre. In a preferred embodiment, the areas of direct attachment of the shroud to the helmet and the mounting of the camera on the shroud are afforded greater integrity. Preferably, the areas not involved in direct attachment use the minimum of material required to maintain the shape of the shroud.

Preferably, the material employed is "E" glass 285 gram 8 hardness resin.

The present invention provides the advantage that the helmet shroud can be pre-moulded to fit into currently existing safety helmet. This removes the necessity for having many different helmets for different sports. The helmet shroud provides the further advantage that upon impact, the shroud will break apart allowing its contents to fall away and avoiding injury to the head of the user. Furthermore, the helmet has the advantage that the camera can be adjusted to give the best view of the sport depending upon the posture of the particular individual using the shroud. Furthermore, the helmet shroud also enables the various electronic components of the camera system to be given a level of physical protection from the elements, whilst not giving rise to the possibility of injury on the part of the user.

An example of a helmet made in accordance with the present invention will now be described with reference to the attached drawings, in which:

Figure 1 shows the side view of such a shroud;
Figure 2 shows the top view of such a shroud;
Figure 3 shows a front view of the shroud; and
Figure 4 shows a cross-section through the line A-A in Figure 1.

Figure 1 shows a helmet shroud 10. The shroud 10 fits over an existing helmet 12. The shroud 10 is held on the helmet 12 (shown in dotted lines in the Figure) by front and back clips 14. These clips 14 fit over the bottom edge of the helmet 12. A housing 16 is mounted on top of the shroud 10 which contains a camera system 18. On the intended rear of the shroud 10 is a wiring duct 20. The top of the wiring duct 20 enters the housing of the camera 18 and, at its bottom, the duct 20 splits into two wing loom channels 22, which take the electrical wiring to protrusions 24 on either side of the shroud 10 which may contain batteries, microwave link and similar such electronics.

Figure 2 shows a top view of the shroud 10 in which the protrusions 24 contain spaces 26 (shown in dotted lines in the Figure) for the electronics. The wiring duct 20 can clearly be seen entering the intended rear of the camera housing 16. The camera housing 16 fits in a slot 28 along the axis 30 of the shroud 10.

Figure 3 shows a front view of the shroud 10 which clearly shows the slot 28 in which the camera housing 16 fits. As can be seen from Figure 1, the slot 28 has a uniform radius of curvature which enables the housing 16 to be moved to any desired position in the slot 28. Figure 3 also shows clearly the space between the helmet 12 and the shroud 10. This space contains all the necessary electronics. Furthermore, it also facilitates breaking of the shroud 10 upon impact.

Figure 4 shows a cross-section through the camera housing 16 in which the camera 18 is held. As can be seen, the camera housing 16 fits under the outside of the shroud 10 and is held to the underside of the shroud 10 by retaining clips 32. The camera housing 16 can be moved in the track 34 created by the shroud 10 and the clip 32 backwards and forwards in the slot 28. Once the

desired position is reached, retaining means such as small screws can be used to fix the position of the camera.

The material from which the shroud is made is manufactured from a composition which gives a level of structural integrity which easily collapses or fractures when stressed. The preferred material for the manufacture of the shroud is pre-impregnated resin glass fibre. With this material, it is possible to control the manufactured thickness of the shroud and, ultimately, the density of composition of the structure, and thus the integrity in the case of impact. Furthermore, the camera shroud can thus be moulded to fit a desired helmet. The shroud is manufactured from the lamination of materials in dependence upon the weave, material density and amount of resin that is required to evenly cover the pre-impregnated glass fibre cloth. The shroud is assembled from these materials by being placed in a mould of the required shape, such that the areas of direct attachment are afforded greater integrity. The remainder of the shroud uses only a minimum of material to form the required shape. Preferably, the material is "E" glass 285 gram 8 hardness resin, laid in the following standard. Firstly, the exterior shape is formed in one piece in the mould, being one thickness of pre-impregnated resin glass fibre. Then two further layers are placed around the area that will form the lower edges of the shroud. This procedure is also applied to the area surrounding the slot 28.

It will be readily apparent to the reader that the present invention is applicable to any safety helmet used in any application where it might be required.

Claims

1. A helmet shroud (10) equipped with a camera (18), characterised in that the shroud (10) can be releasably attached to a helmet (12) and the body of the shroud (10) is constructed to enable it to break apart upon impact.

2. A helmet shroud, according to Claim 1, characterised in that the camera (18) is movably attached to the shroud (10).

3. A helmet shroud according to Claim 1 or Claim 2, characterised in that the shroud (10) is equipped with a space (26) for a separate power pack for the camera (18).

4. A helmet shroud according to any preceding claim, characterised in that the shroud (10) is further equipped with a space (26) for a transmitter for the camera (18).

5. A helmet shroud according to any preceding claim, characterised in that the shroud (10) is equipped with channelling (20,22) to enable connection of the battery and/or transmitter to the camera (18).

6. A helmet shroud according to any preceding claim, characterised in that the camera (18) is mounted in a housing (16), which is movably attached to the shroud (10).

7. A helmet shroud according to Claim 6, characterised in that the housing (16) fits in a slot (28) in the shroud (10) which has a uniform curvature.

8. A helmet shroud according to Claim 7, characterised in that the slot (28) is equipped with retaining means (32) to hold the camera housing (16) in one position.

9. A helmet shroud according to any preceding claim, characterised in that the attachment means (14) for attaching the shroud (10) to the helmet comprise retaining clips (14).

10. A helmet shroud according to Claim 9, characterised in that the retaining clips (14) are at the intended front and rear of the helmet (12).

11. A helmet shroud according to any preceding claim, characterised in that the areas (14) of direct attachment of the shroud (10) to the helmet and the mounting (28) of the camera (18) on the shroud (10) are afforded greater integrity.

12. A helmet shroud according to Claim 11, characterised in that the areas not involved in direct attachment use the minimum of material required to maintain the shape of the shroud (10).

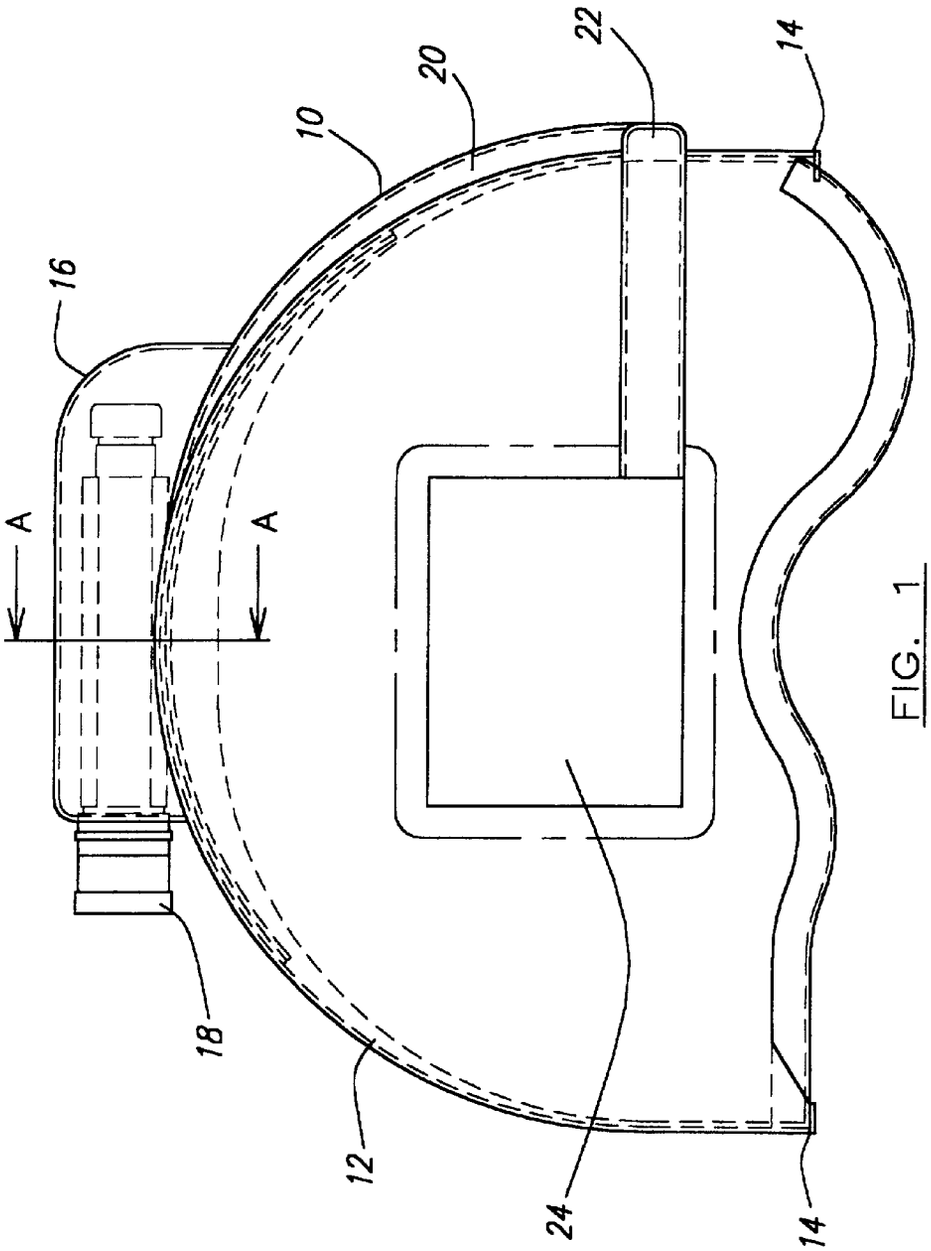

FIG. 1

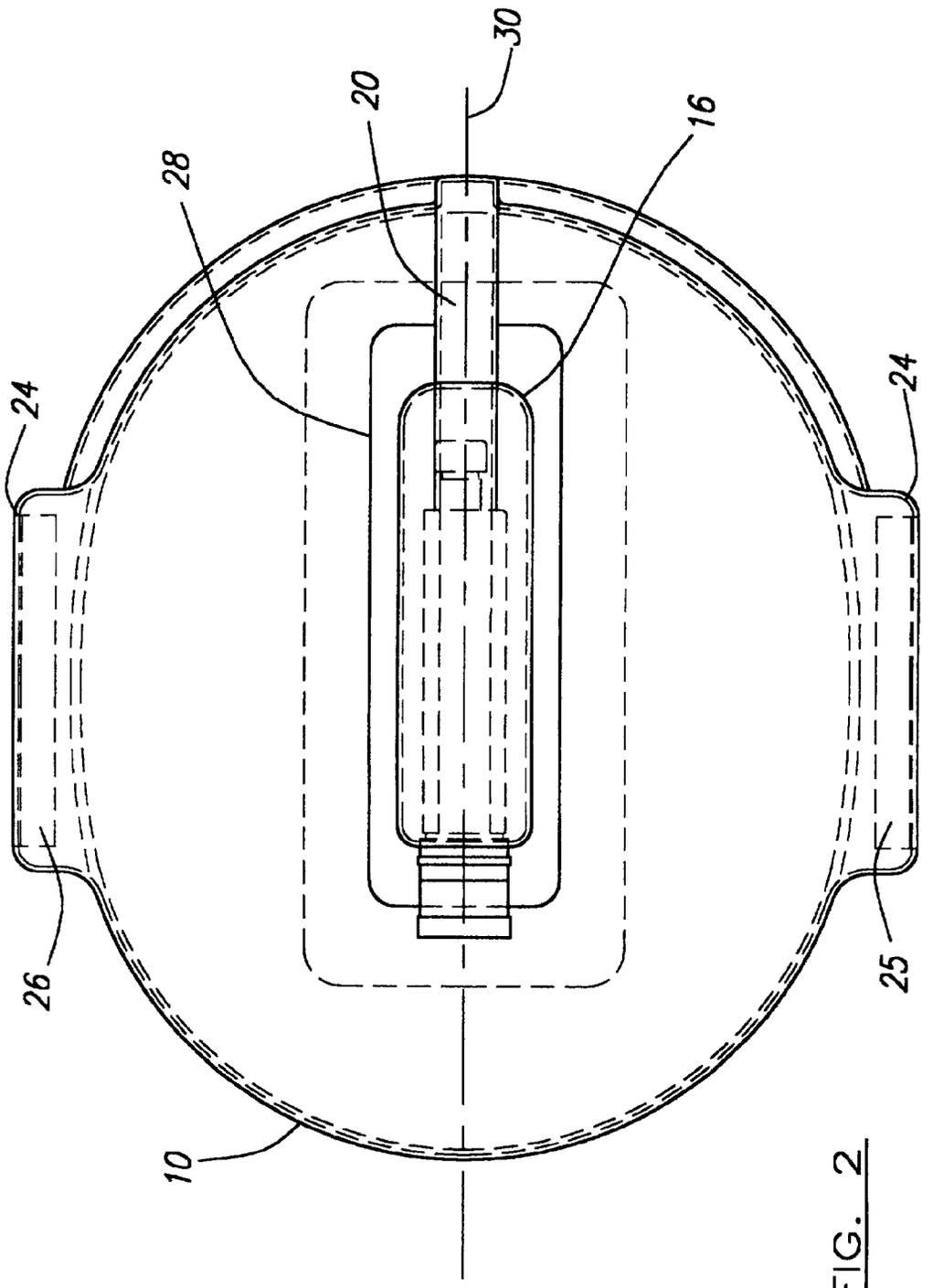

FIG. 2

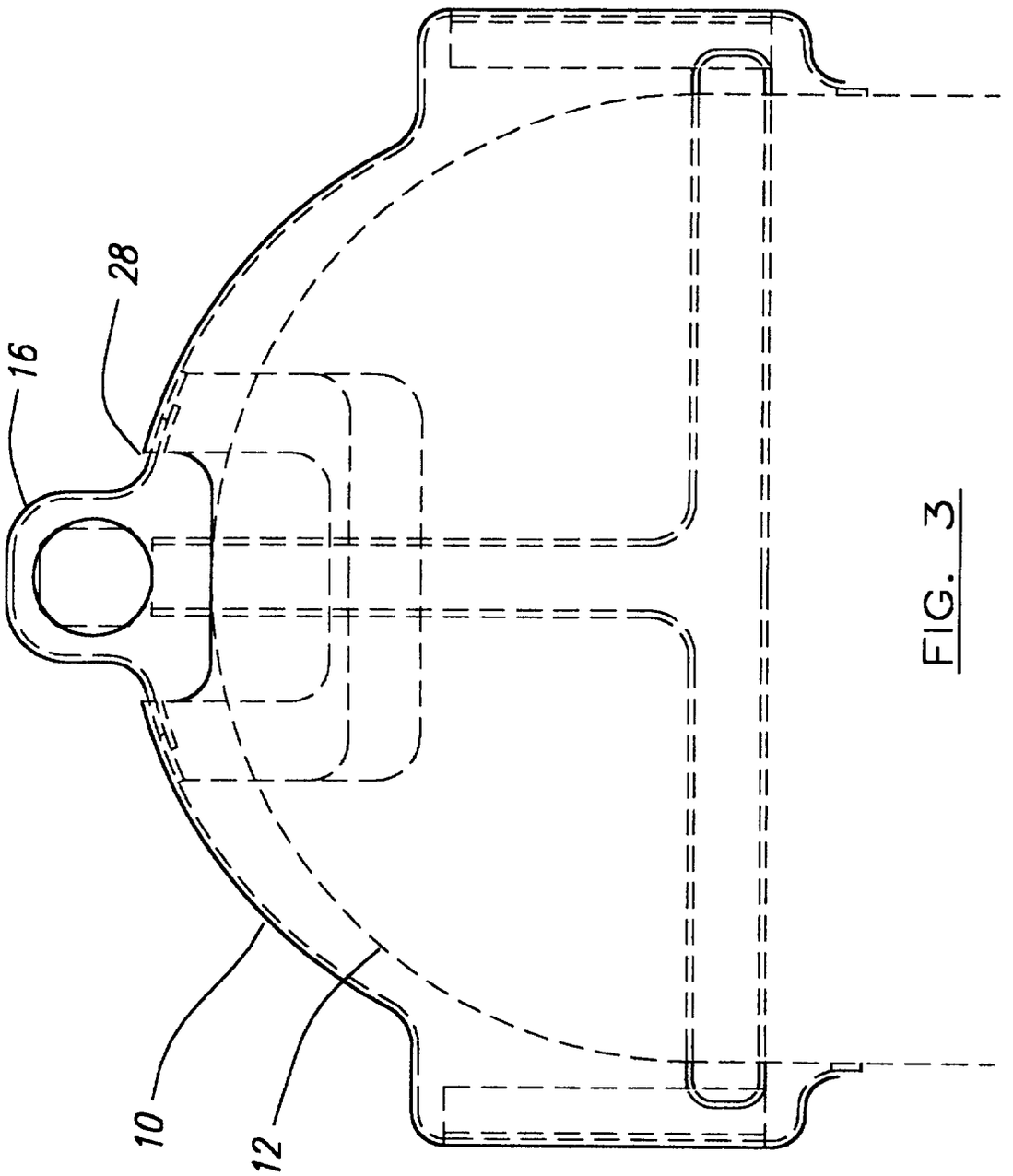

FIG. 3

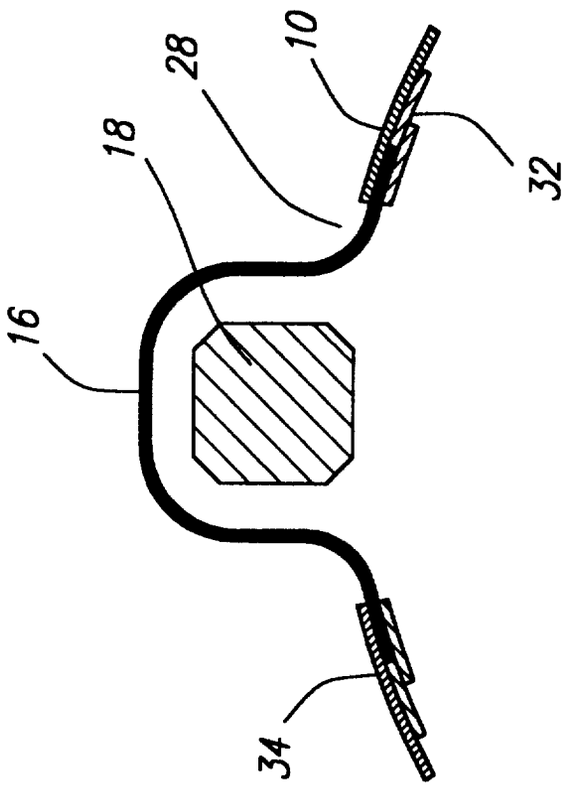

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 98 30 1390

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	WO 95 31909 A (HELMET INTEGRATED SYSTEMS LIMITED) 30 November 1995 * page 4, paragraph 6 - page 5, last paragraph; claims; figures *	1,3-5	A42B3/04 A42B3/06
Y	US 4 195 328 A (W. R. HARRIS) 25 March 1980 * column 5, line 47 - column 6, line 55 * * figures 1-4 *	1,3-5	
A	EP 0 622 030 A (CAIRNS & BROTHERS INCORPORATED) 2 November 1994 * column 2, line 8 - line 27 * * column 3, line 28 - column 4, line 36 * * column 7, line 6 - column 8, line 31; figures 1,2,8; examples 1,3-6 *	1,2	
A	EP 0 321 934 A (CAIRNS & BROTHERS INCORPORATED) 28 June 1989 * the whole document *	1,9,10	
A	DE 93 13 496 U (S. PIETSCHMANN) 3 March 1994		TECHNICAL FIELDS SEARCHED (Int.Cl.6) A42B
A	FR 2 376 635 A (DRAGERWERK AG) 4 August 1978		
A	US 3 723 992 A (E. KAMATA) 3 April 1973		
A	US 3 423 758 A (F. HEACOX) 28 January 1969		
A	US 4 599 752 A (S. C. MITCHELL) 15 July 1986		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	15 June 1998	Bourseau, A-M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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