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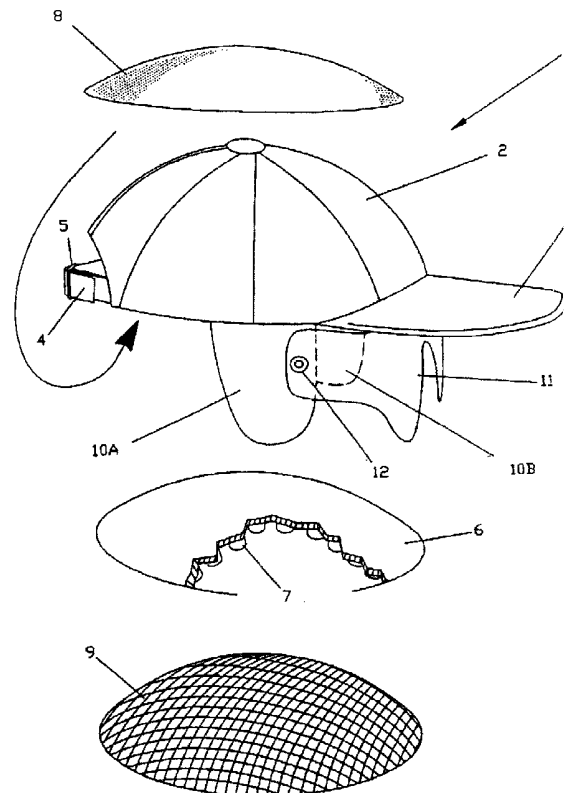
(52) UK CL (Edition W):
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(56) Documents Cited:
WO 1994/002257 A3 US 6041437 A
US 5437064 A US 5226180 A
US 5129102 A US 4912778 A
US 3882547 A US 2218947 A
US 20010016958 A1

(58) Field of Search:
UK CL (Edition V) A3V
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Other: Online: WPI, EPODOC, JAPIO

(54) Abstract Title: **A safety hat**

(57) A safety hat comprising a fabric hat body 2 with an internal cushioned layer 6 to protect against blows and a layer of heat modifying material 8 that alters the temperature inside the hat, the additional layers are located between the body of the hat and the wearer's head. The hat protects the wearer's head against blows from golf balls. The heat modifying material 8 may be a layer of heat reflective material or phase change material such as Outlast (RTM) that may be a separate layer to or integral with the cushioning layer 6. The cushioning layer 6 may be made from foam that may be elastic to accommodate various head sizes and include projections 7 to allow air flow and have a gauze layer 9. The hat may also include a front peak 3, detachable neck flap, padded side flaps 10A, 10B and removable sun visor 11.



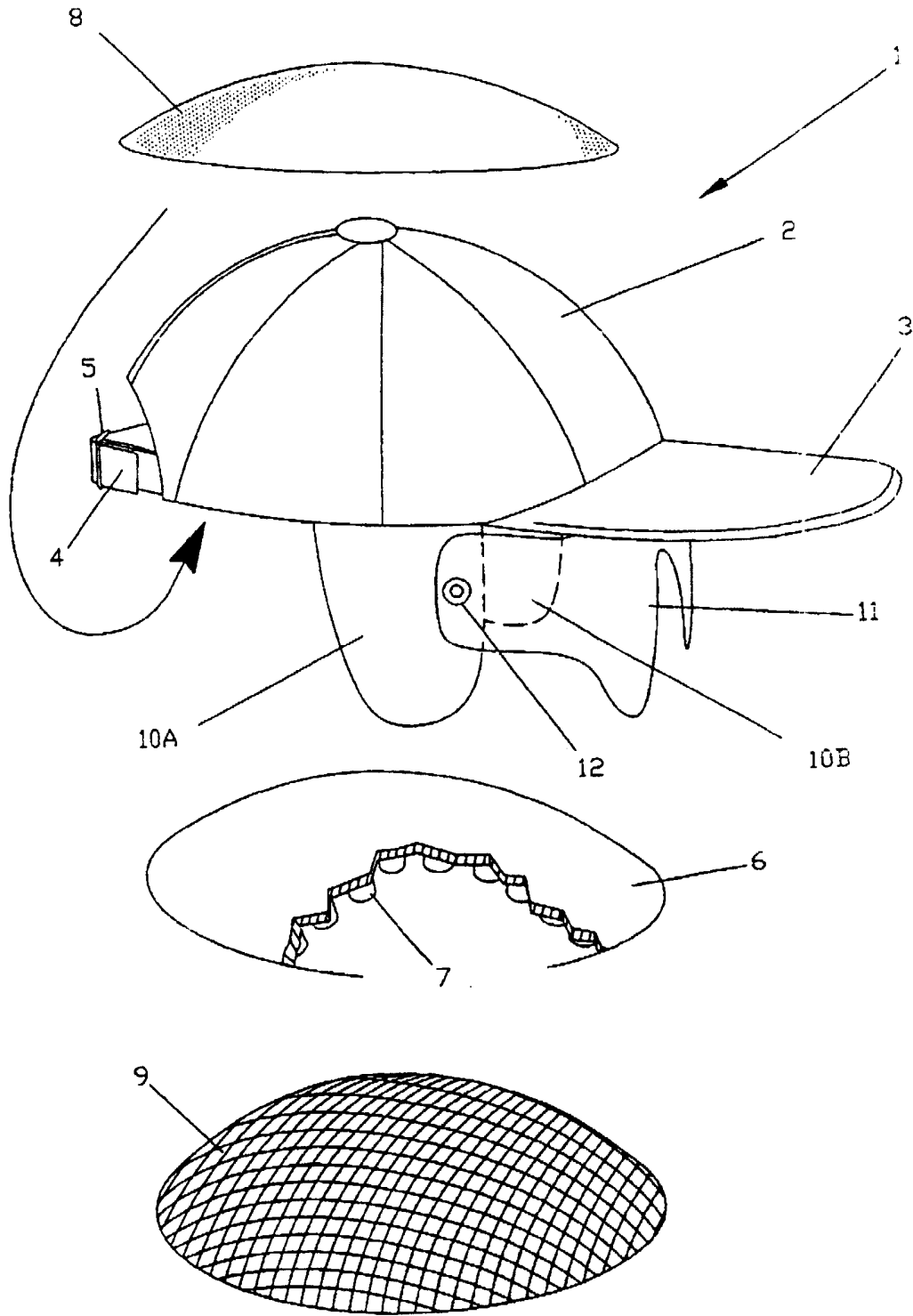
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The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

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Title: Safety Hat

The present invention relates to a safety hat.

Many people watch golf tournaments. As these tournaments are often held when the sun is shining, spectators often wear hats such as caps with peaks. Very occasionally, a golf ball lands on the head of a spectator which can lead to serious injury or a fatality.

Also, on hot days, such known hats can be hot to wear causing the head to sweat. On cold days known hats do not always keep the head warm.

The invention seeks to provide a safety hat for use in particular for spectators at golf matches.

According to the present invention there is provided a safety hat comprising:

- a) a hat body formed from fabric,
- b) a cushioning layer lining the hat body to lie between the head and the hat body, and
- c) a heat modifying material between the head and the hat body.

The heat modifying material may be a separate layer to the cushioning layer, and may be between the cushioning layer and the hat body or between the cushioning layer and the head. Alternatively the heat modifying material may be integrated with the cushioning layer.

The heat modifying material may be a layer of reflective material, or may be in the form of phase change material. The phase change material may be in the form of fibres incorporating phase change material, e.g. of the type sold under the US Trade Mark “Outlast”^(R_{TM}).

The hat body may include a front peak. The hat may include a rear flap to protect the neck of a wearer, which flap may be detachable.

The cushioning layer may be moulded generally to the shape of the top of the head. The cushioning layer may be elastic or otherwise adjustable in size to accommodate various sizes of heads.

The cushioning layer may include a plurality of projections thereon to space the cushioning layer from the head so as to create an airflow space between the cushioning layer and the head.

A gauze layer may be provided between the projections and the head to spread the load of the projections to add comfort to the hat.

The safety hat may further include a pair of side flaps to protect the temples of the wearer.

The safety hat may further include a sun visor. The visor may be removable.

The invention will now be described with reference to the accompanying drawings showing an exploded perspective view of one embodiment.

Referring to the drawing there is provided a safety hat 1. Hat 1 comprises a hat body 2 formed from fabric such as a cotton textile and may be formed from sewing segments together. The hat body 2 may include a peak 3. Hat body 2 has a rear strap 4 adjustable in length by means of a buckle 5. Hat body 2 with the peak 3 and strap 4 and buckle 5 may be similar to caps or hats well known in the art.

A cushioning layer 6 lines the hat body 2 to lie between the head of the wearer and the hat body. The cushioning layer may be moulded generally to the shape of the top of the head, and may be formed from a foam such as a closed cell foam, e.g. cross-linked polyethylene. The cushioning layer may include a plurality of projections 7 on its inner surface to space the cushioning layer from the head so as to create a space between the cushioning layer and the head. The cushioning layer may be elastic or otherwise adjustable in size to accommodate various sizes of heads.

Heat modifying material in the form of a heat reflective layer 8 is provided between the hat body 2 and the cushioning layer 6. The heat reflective layer may be formed from a textile with a reflective coating, or a reflective foil.

A gauze layer 9 is provided between the projections 7 and the head to spread the load of the projections to add comfort to the hat.

Extending from the hat body 2 are a pair of padded side flaps 10A,10B to protect the temples of a wearer.

A sun visor 11 is provided for the hat 1. The visor 11 may be removable and may connect to side flaps 10A,10B, e.g. by means of poppers. Alternatively the sun visor 11 could be connect inside the rim of the hat, e.g. with Velcro^(R™)(trade mark).

In use the hat 1 may be worn by a golf spectator. The peak keeps the sun off the face and the visor acts like sun glasses. The heat reflective layer reflects any heat absorbed by the cap body 2 away from the wearer's head. The projections 7 and gauze 9 allow air to circulate between the head and the cushioning layer 6 so that sweat can evaporate from the head.

If a golf ball should land on the hat, the cushioning layer will absorb much of the shock so preventing damage to the wearer's head. The gauze also helps to dissipate the shock over the surface of the head.

The hat of the invention may be formed from any desired colour/s and/or pattern/s. The cap may support printed information such as advertising messages.

The hat of the invention may take a form different to that specifically described above. For example the gauze and/or projections could be omitted, as could the peak and the side flaps and/or visor.

The heat modifying material such as the layer 8 may be between the cushioning layer and the head. Alternatively the heat modifying material may be integrated with the cushioning layer. The heat modifying material may be in the form of phase change material. The phase change material may be in the form of fibres incorporating phase change material, e.g. of the type sold under the US Trade Mark "Outlast"^(RTM). The phase change material may be used in a separate layer or integrated in the cushioning layer. Use of phase change material would keep the head cool on hot days and warm on cold days. The hat may include a rear flap to protect the neck of a wearer from the sun and/or keep the neck warm, and the rear flap may be detachable.

The hat of the invention may be used for activities other than watching golf. For example it could be worn when watching cricket or baseball or any other game where a relatively hard ball is used.

Further modifications will be apparent to those skilled in the art without departing from the scope of the present invention.

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Claim:

- Safety Cap
- Cushioned layer to absorb light blows
- Intergrated Phase Change Material to enable the cap to stableize at a constant temprature.



INVESTOR IN PEOPLE

Application No: GB 0216586.8
Claims searched: 1

Examiner: Sally Vaughan
Date of search: 23 October 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
Y	1	WO 94/02257 A3 (BUCKLEY) see whole document eg. Fig 15, abstract, page 9 line 28 - page 11 line 20 and page 23 lines 20 -23
Y	1	US 5437064 (HAMAGUCHI) see whole document eg. Fig 5 and column 5 line 36 - column 6 line 30
Y	1	US 5226180 (LEACH) see whole document eg. Fig 1 & 2 and column 1 line 66 - column 2 line 10
Y	1	US 4912778 (DANIELS) see whole document eg. Fig 1 and column 1 lines 28 - 45
Y	1	US 2218947 (BRUNZELL) see whole document eg. Fig 5, page 1 column 1 lines 13 - 17 and column 2 lines 26 - 36
A		US 2001/0016958 A1 (LINDAY) see whole document eg. drawings and page 5 paras 0071 - 0072
A		US 6041437 (BARKER et al) see whole document eg. column 3 line 65- column 4 line 10
A		US 5129102 (SOLO) see whole document eg. Fig 1 - 3 and abstract
A		US 3882547 (MORGAN) see whole document eg Fig 1

Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category.	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKCY:

A3V



INVESTOR IN PEOPLE

Application No: GB 0216586.8
Claims searched: 1

Examiner: Sally Vaughan
Date of search: 23 October 2003

Worldwide search of patent documents classified in the following areas of the IPC⁷:

A41D, A42B, A63B

The following online and other databases have been used in the preparation of this search report:

Online: WPI, EPODOC, JAPIO