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(54) Title: BASEBALL CAP

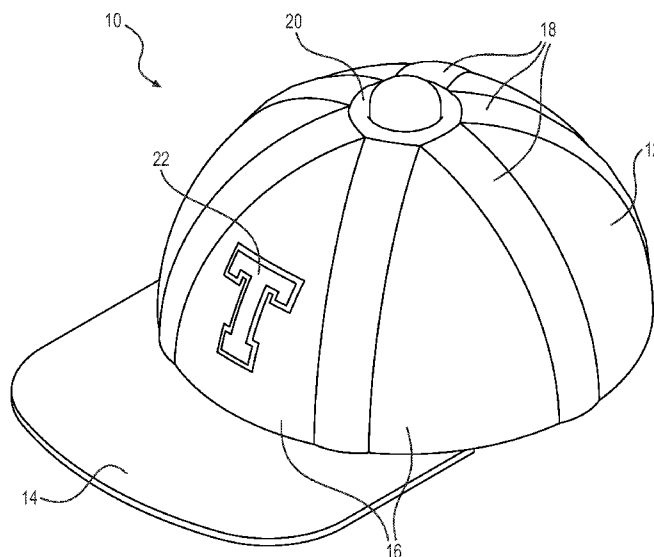


FIG. 1

(57) Abstract: Baseball caps to be worn on a person's head are provided. According to one embodiment, a baseball cap includes a dome configured to be placed on the wearer's head, wherein the dome includes one or more panels and one or more cooling channels. The baseball cap also includes a hub positioned at a top of the dome. The hub comprises a central cavity and one or more conduits in gaseous communication with the one or more cooling channels of the dome. A coolant output port is provided in gaseous communication with the central cavity of the hub. The coolant output port is configured to supply a coolant gas to the one or more cooling channels of the dome via the central cavity of the hub.

[Continued on next page]



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/29114

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC - A42B 1/00, A42B 3/00, A42B 3/28, A42C 5/04 (2020.01)  
 CPC - A42B 1/00, A42B 1/008, A42B 1/064, A42B 3/00, A42B 3/28, A42B 3/281, A42B 3/283, A42B 3/285, A42B 3/286, A42C 5/04

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)  
 See Search History document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- A	US 6,598,236 B1 (GANTT) 29 July 2003 (29.07.2003), entire document;	1-3, 11, 13 --- 4-10, 12
Y --- A	US 2018/0064199 A1 (BATTIS, ET AL.) 08 March 2018 (08.03.2018), entire document;	1-3, 11, 13 --- 4-10, 12
Y	US 5,613,246 A (ALEXANDER) 25 March 1997 (25.03.1997), entire document;	11
Y	US 4,709,702 A (SHERWIN) 01 December 1987 (01.12.1997), entire document;	1, 13

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

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"D" document cited by the applicant in the international application	"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
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"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)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 12 March 2020	Date of mailing of the international search report <b>30 MAR 2020</b>
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer Lee Young Telephone No. PCT Helpdesk: 571-272-4300
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/29114

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009/0032049 A1 (RABIN, ET AL.) 05 February 2009 (05.02.2009), entire document;	1-13
A	US 2016/0037833 A1 (KRIESEL) 11 February 2016 (11.02.2016), entire document;	1-13
A	US 2013/0152274 A1 (WELCH) 20 June 2013 (20.06.2013), entire document;	1-13
A	US 8,136,169 B2 (TAYLOR) 20 March 2012 (20.03.2012), entire document;	1-13
A	US 2008/0183406 A1 (SOLARI) 10 July 2008 (10.07.2008), entire document;	1-13
A	US 6,151,718 A (SHIRAI) 28 November 2000 (28.11.2000), entire document;	1-13
A	US 6,050,099 A (LOPA, ET AL.) 18 April 2000 (18.04.2000), entire document;	1-13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 19/29114

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
 -\*See Extra Sheet\*-

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-13

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
  - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
  - No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

PCT/US 19/29114

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I: Claims 1-13, directed to a baseball cap having a coolant distribution system.

Group II: Claims 14-16, directed to a baseball cap having a slidably adjustable brim.

Group III: Claims 17-20, directed to a baseball cap having a motorized strap adjustment system.

Group IV: Claims 21-22, directed to a baseball cap outfitted with a plurality of brainwave sensors.

The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

**SPECIAL TECHNICAL FEATURES**

The invention of Group I includes the special technical features of:

one or more cooling channels;

a hub positioned at a top of the dome, the hub comprising a central cavity and one or more conduits in gaseous communication with the one or more cooling channels of the dome; and

a coolant output port in gaseous communication with the central cavity;

wherein the coolant output port is configured to supply a coolant gas to the one or more cooling channels of the dome via the central cavity of the hub;

these features not being required by the claims of Groups II-IV.

The invention of Group II includes the special technical features of:

the dome including a downward-extending fold;

a brim including an upward-extending fold configured to interlock with the downward-extending fold of the dome;

wherein the position of the brim is adjustable with respect to the dome by sliding the upward-extending fold of the brim with respect to the downward-extending fold of the dome;

these features not being required by the claims of Groups I, III-IV.

The invention of Group III includes the special technical features of:

a strap assembly configured to adjust a tightness of the dome on the wearer's head, the strap assembly including an outer strap attached to a first edge portion of the dome and an inner strap attached to a second edge portion of the dome, the inner strap configured to be movable within the outer strap; and

a motor attached to first and second cables, the first cable configured to draw the inner strap closer to the first edge portion of the dome and the second cable configured to draw the outer strap closer to the second edge portion of the dome;

these features not being required by the claims of Groups I-II, IV.

The invention of Group IV includes the special technical features of:

sensors are configured to contact a wearer's head when the baseball cap is placed on the wearer's head, the brainwave sensors configured to be receptive to brainwave activity of the wearer;

a control box in electrical communication with the plurality of brainwave sensors;

these features not being required by the claims of Groups I-III.

**COMMON TECHNICAL FEATURES**

Groups I-IV share the common technical features of:

A baseball cap comprising:

a dome configured to be placed on a wearer's head.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 2009/0032049 A1 to Rabin, et al. (hereinafter Rabin).

Rabin discloses a baseball cap (cap 1, Figs. 1, 3) comprising:

a dome configured to be placed on a wearer's head (see unnumbered dome of cap 1, Figs. 1-2; Abstract).

Groups I-II share the common technical features of:

A baseball cap comprising:

a dome configured to be placed on a wearer's head, the dome including one or more panels.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by Rabin.

Rabin discloses a baseball cap (cap 1, Figs. 1, 3) comprising:

a dome configured to be placed on a wearer's head (see unnumbered dome of cap 1, Figs. 1-2; Abstract), the dome including one or more panels (see unnumbered triangular panels between arms 4, Figs. 1-2).

As the common technical features were known in the art at the time of the invention, these cannot be considered special technical feature that would otherwise unify the groups.

Therefore, Groups I-IV lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.