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(54) **Helmet with visor**

(57) A helmet (100) comprising a cap (1) and a visor (2), and characterized in that the visor (2) may be positioned to protect the wearer's face according to two different configurations, a first one in which it is prevented

passage of air inside of inlet sections (15), apt to convey an air flow into suitable aeration means (14), and a second one in which said air flow is allowed.

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Description

[0001] The present invention refers to a helmet for sporting activities, in particular for motorcycling.

[0002] The near totality of helmets currently produced for sporting activities have aeration systems allowing to convey air from the outside to the inside of the helmet.

[0003] Such a need is linked to the fact that helmets, in particular for motorcycle use, require a high degree of protection with remarkable abilities to absorb impact-deceiving energy. To attain this result, caps with ever wider covering surfaces, and expanded and non-expanded materials are used that however entail, among other things, high insulation capacity.

[0004] Moreover, above all for helmets used at high speeds, there has to be ensured utmost air tightness (sealing), in particular between cap and visor, to reduce aerodynamic noise and avoid lacrimation and other inconveniences to the wearer.

[0005] These features entail the reaching of temperatures internal to the helmet that may exceed the 50 °C and accumulations of relative humidity of up to 90%. Just in order to obviate these problems, helmets manufactured according to the known art comprise aeration systems, essentially consisting in ports made in the front portion of the helmet cap, equipped with conveyors for introducing air at ambient temperature.

[0006] Moreover, usually other ports are made in the rear/bottom portion of the cap, with the purpose of drawing heated air.

[0007] Therefore, aeration systems have the task of producing a drop in temperature inside the helmet, and generally of making its use more comfortable.

[0008] However, in the cold season and generally when no sensation of hotness is felt, the use of such aeration systems is unnecessary, even becoming less than comfortable to the wearer, causing an excessive sensation of coldness and unpleasant draught.

[0009] For this reason, in helmets manufactured according to the known art the aeration systems are provided with suitable closures, allowing - when required - to open or close the conveyors implementing ventilation inside the helmet.

[0010] Known closures are generally made by means of shutter-like systems, which can be actuated by acting with the hands on a given position, usually on the top portion of the cap.

[0011] However, for obvious reasons said position on which it is necessary to act in order to control the shutters or the other known closure means, is not visible to the helmet wearer, who therefore has to search for it by touch, roughly recalling its location.

[0012] Hence, a first problem entailed by known-art helmets is related to the difficulty in singling out the exact spot on which to act in order to control the closures of the aeration means, since, very frequently, in sporting practices envisaging helmet use it is commonly recommended also the use of thick gloves, which limit the sense

of touch.

[0013] However, an even more relevant problem concerns the difficulty, if not the impossibility, to understand whether the aeration ducts be open or closed.

[0014] It has to be understood that the ducts anyhow allow very limited air flow rates, as they must have very limited dimensions; this is so since with the increase of the latter, other dimensions being equal, helmet resistance to knocks decreases.

[0015] Hence, the cool relief effect that these ducts may produce is quite limited and cannot be immediately felt by the wearer, who therefore is never certain about the aeration system being open.

[0016] Alike remarks are valid for the closure, since when outside temperature is harsh it is not always easy to tell whether the sensation of coldness is due to the aeration ducts being open or to the normal passage of air taking place from the neck and visor.

[0017] Hence, the technical problem underlying the present invention is to provide a helmet allowing to overcome the drawbacks mentioned above with reference to the known art.

[0018] Such a problem is solved by a helmet according to claim 1.

[0019] The present invention provides several relevant advantages. The main advantage lies in that the helmet according to the present invention allows to actuate the aeration system very simply, with no need to search for levers, shutters or other specific spots or mechanisms on the helmet.

[0020] Moreover, the helmet according to the present invention allows the wearer to easily realize the position, open or closed, of the aeration means, leaving no doubt about it.

[0021] Other advantages, features and the operation modes of the present invention will be made evident from the following detailed description of some embodiments thereof, given by way of example and not for limitative purposes. Reference will be made to the figures of the annexed drawings, wherein:

figure 1 is an exploded perspective view of a helmet according to the present invention;

figure 2 is a partially sectional perspective view, showing the helmet of figure 1 with related aeration means in an open configuration;

figures 3A and 3B are two perspective views illustrating the operation of the helmet according to the present invention, in the open configuration of figure 2 and in a closed configuration, respectively.

[0022] Referring initially to figure 1, a helmet 100 comprises a cap 1, a visor 2 and a sealing member 3.

[0023] In particular, in the present embodiment, the helmet is of a jet type; i.e., the cap 1 covers the head, down to the ears and cheeks, yet leaving face and chin free.

[0024] The visor 2, hinged onto the cap 1 by means of

suitable hinges 11, is positioned to cover the face.

[0025] Analogously to what happens for the helmets manufactured according to the known art, the visor may be removable from the cap, so as to allow its replacing following scratches or other damages.

[0026] The hinges 11 implement a pivotable connection of the visor 2, allowing the latter to be positioned covering the wearer's face, and optionally, depending on its dimensions, also the cheeks and jaw, or raised, above a top portion 12 of the cap 1.

[0027] This latter configuration allows to wear the helmet, as well as passage of air on the face in hot seasons or when traveling at a low speed.

[0028] The sealing member 3 is positioned at an edge 13 of the cap, in correspondence of the opening that the latter has for the face; the former substantially allows to prevent passage of air inside the helmet when the visor is in a lowered position, covering the face.

[0029] The sealing member is made by means of a shaped support 3 and it comprises, fastened to respective ends, two closure thin plates 32 of a soft material, like, e.g., plastics, providing the required tightness (seal) between cap and visor.

[0030] Therefore, referring to figure 2, the helmet further comprises aeration means 14, comprising ducts allowing air flow inside the helmet and, anyhow, essentially manufactured according to the known art.

[0031] The aeration means 14 comprises an inlet section 15, illustrated in detail in figure 1, allowing inletting of outside air into the aeration means and, in particular, into the ducts.

[0032] Hence, referring to figures 3A and 3B, the visor 2 may be positioned to protect the wearer's face according to two different configurations; a first one, in which passage of air inside the inlet sections 15 is prevented, and a second one in which said passage is allowed.

[0033] Figure 3A depicts the visor positioned so as to cover the inlet sections 15, i.e. to close the aeration means 14.

[0034] To implement the closure of the aeration means, the visor comprises a portion 21 that, even when arranged to cover the face, extends over the cap, beyond the edge 13.

[0035] Thus, thanks to the use of the sealing member 3, and in particular of the closure thin plates 31 that keep into contact with the portion 21, passage of air inside the helmet through the edge 13 is not allowed when the visor is in said position.

[0036] Moreover, the portion 21, optionally by means of suitable extensions 22, covers the inlet sections 15, whose closing is fostered also thereat by means of the sealing member 3, which comprises, above the same sections, one of the two closure thin plates 31.

[0037] Said extensions 22, which may be used to more effectively implement the closing of the aeration means, have a shape complementary to the inlet sections 15, so as to obstruct the latter in the closing position of the aeration means.

[0038] Then, referring to figure 3B, the visor may be positioned, always covering the face, in a second configuration, in which the inlet sections 15 are not obstructed, so as to allow passage of air inside the aeration means 14.

[0039] With respect to the preceding case, the visor is lowered even more on the face, toward the chin, by means of the rotation effected by the hinges 11.

[0040] Therefore, by means of the hinges 11 it is possible to fully raise the visor, in order to wear the helmet, as well as to alternatively bring said visor to the two afore-described positions, in both of which the visor covers the face.

[0041] To facilitate the positioning of the visor, the hinges 11 may be provided with a suitable blocking system which, upon reaching each of said positions, allows to at least partially block the travel of the visor. Then, to reach the next position it suffices to act on the visor with a force such as to overcome the blocking action.

[0042] Such a system may, e.g., be made by means of the use of suitable seats, positioned at each of said operative positions, which may accommodate a tooth integral to the visor motion.

[0043] Therefore, the tooth will remain blocked into the seat, until a force sufficing to forcibly drive it out therefrom is exerted.

[0044] Anyhow, the helmets manufactured according to the known art are provided with analogous systems, though envisaging the sole open-visor and closed-visor positions; therefore the blocking system will not be described in greater detail, as it lies within the reach of a person skilled in the art.

[0045] Thanks to such a blocking system and to the use of the visor for controlling the aeration means, it is possible to control the latter very simply, since, by bringing the visor to the position of maximum rotation toward the bottom portion of the head, the inlet sections 15 allow passage of air inside the aeration means, as illustrated in figure 3B.

[0046] Moreover, referring to figure 3A, in the immediately successive position, which may easily be reached by rotating the visor to the successive blocking spot, said passage is forbidden.

[0047] Analogously, when wearing-on the helmet with the visor fully raised, the latter could be lowered until covering the ports, or leaving them free, depending on whether it is desirable to keep the aeration means closed or open, respectively.

[0048] Moreover, it is understood that the sealing member 3 may also have different shapes, since on the one hand its object is to avoid passage of air inside the helmet through the edge 13, both when the aeration means is open and when it is closed.

[0049] On the other hand, the sealing member allows to avoid inletting of air inside the aeration means, when the inlet sections are closed.

[0050] Therefore, also different configurations of the sealing member may be used, e.g. by fastening of the

closure thin plates onto the visor itself, or optionally by using more than one member, e.g. two distinct ones for inlet sections and edge 13 of the cap.

[0051] According to a different embodiment, not illustrated in the figure, the helmet may be of integral type, covering mouth and jaw as well; in that case, the visor will prevent passage of air both through the edge 13 and at the mouth-covering cap portion.

[0052] In this case, the helmet could have inlet sections of the aeration means both at the wearer's mouth and forehead, and the visor will allow to obstruct, or leave open, both ports with the same motion.

[0053] Evidently, in this case the visor 2 will have a different shape in order to operate concomitantly on both inlet sections.

[0054] E.g., besides the extensions 22, ports might also be present, not illustrated in figure, operating at the mouth-covering cap portion.

[0055] Said configurations are not described in detail, as they are within the reach of a person skilled in the art.

[0056] Lastly, it is understood that anyhow the actuation of the aeration means may be controlled also with different motions of the visor.

[0057] E.g., the opening and closing positions could be reversed, i.e. a lowering of the visor would cause the closing of the inlet sections, contrarily to the preceding case.

[0058] Such a configuration is attainable by utilizing, instead of the extensions 22, ports, which therefore act inversely with respect to the aforescribed embodiment.

[0059] In greater detail, passage of air in the inlet sections 15 is prevented when the visor is completely lowered, as the ports are not aligned with the sections 15, whereas in the successive position such an alignment is made, and therefore the aeration means is not obstructed.

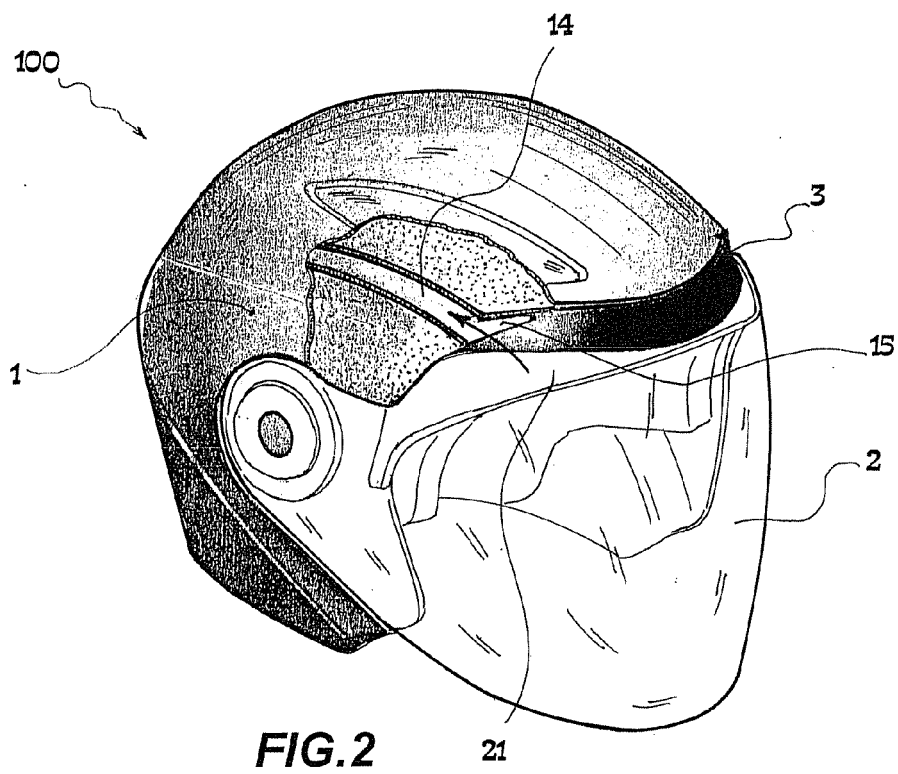
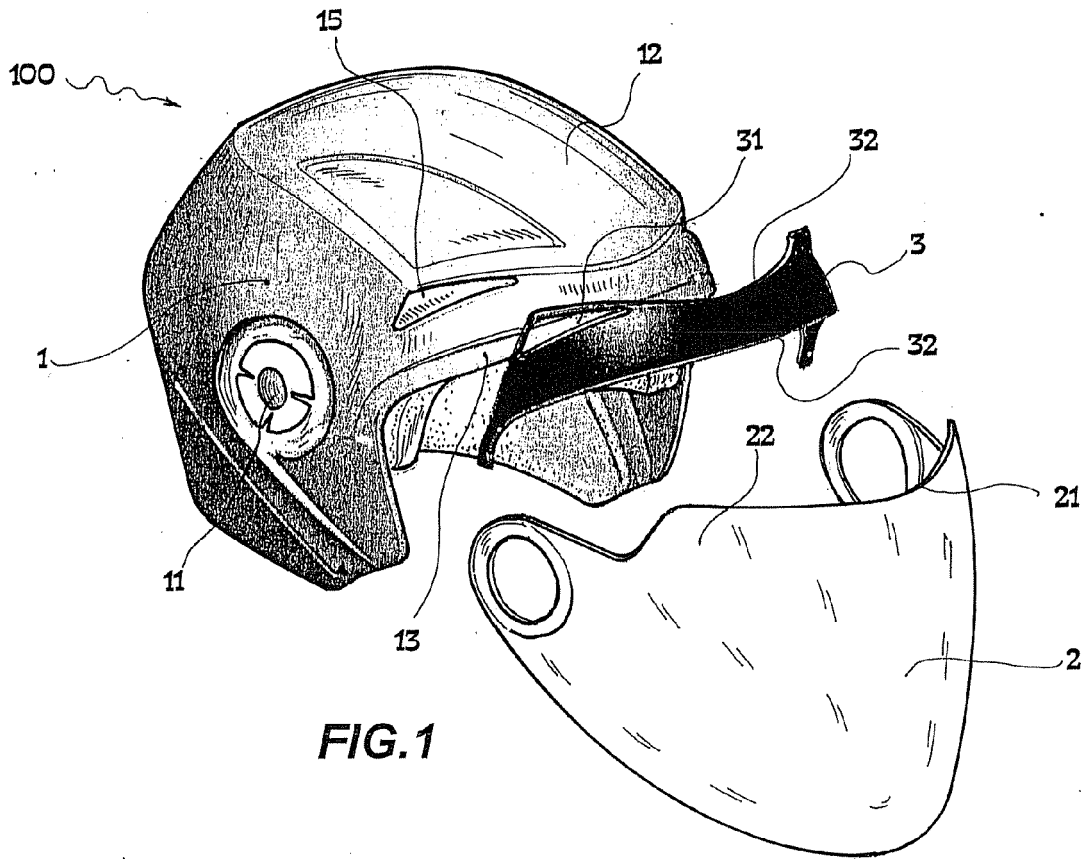
[0060] The present invention has been hereto described with reference to preferred embodiments thereof. It is understood that other embodiments might exist, all falling within the same inventive kernel, and all comprised within the protective scope of the claims hereinafter.

Claims

1. A helmet (100) comprising a cap (1) and a visor (2) connected to said cap (1), **characterized in that** said visor (2) may be positioned to protect the wearer's face according to two different configurations, a first one in which it is prevented passage of air inside of inlet sections (15), apt to convey an air flow into suitable aeration means (14), and a second one in which said air flow is allowed.
2. The helmet (100) according to the preceding claim, comprising a sealing member (3), apt to prevent passage of air between the cap (1) of said helmet and

said visor (2) in said configurations.

3. The helmet (100) according to the preceding claim, wherein said sealing member (3) comprises closure thin plates (32) of a soft material, apt to seal between said cap (1) and said visor (2).
4. The helmet (100) according to the preceding claim, wherein said closure thin plates (32) are fastened to opposite ends of a shaped support (3), said thin plates being present in a number equal to two, each apt to seal between said visor and cap, respectively, in one of said two different configurations.
5. The helmet (100) according to claims 2, 3 or 4, wherein said sealing member (3) is fastened to said visor (2).
6. The helmet (100) according to one of the preceding claims, wherein said visor (2) is pivotably connected to said cap, so as to position said visor (2) according to said configurations by means of the rotation thereof.
7. The helmet (100) according to one of the preceding claims, comprising means for blocking said visor (2) apt alternatively to implement the blocking of said visor (2) in said configurations and to allow the shifting thereof.
8. The helmet (100) according to one of the preceding claims, wherein the passage between said first and second configuration is made by lowering or raising said visor (2) by means of the rotation about hinges (11).



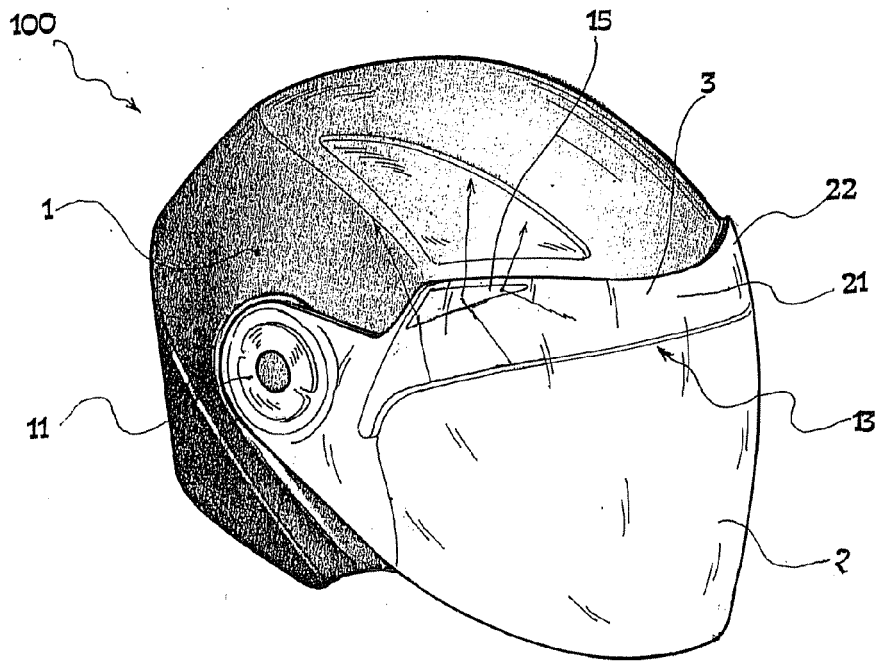


FIG. 3B

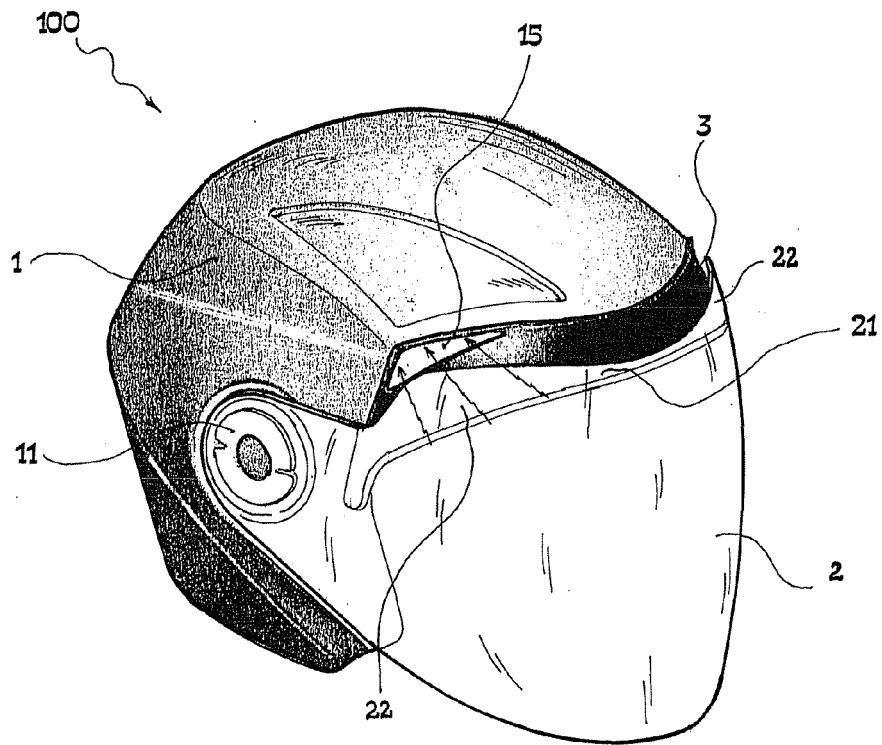


FIG. 3A



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 10 2717

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	US 6 047 409 A (SIMPSON ELWOOD J B [US]) 11 April 2000 (2000-04-11) * column 4, line 5 - line 29; claim 7; figures 1,5-7 *	1,2,4,7	INV. A42B3/24 A42B3/28
X	DE 36 04 813 C1 (SCHUBERTH WERK KG) 1 October 1987 (1987-10-01) * claim 1; figure 1 *	1,6-8	
X	DE 33 41 407 A1 (NAVA PIER LUIGI) 5 July 1984 (1984-07-05) * claim 1; figures 1,2 *	1,2,4,6, 7	
X	DE 43 02 959 C1 (SCHUBERTH WERK KG [DE]) 6 October 1994 (1994-10-06) * claim 1; figures 1,2 *	1,6,7	
A	US 4 698 856 A (ARAI MICHIO [JP]) 13 October 1987 (1987-10-13) * claims 1,3; figure 1 *	1	
A	DE 203 19 624 U1 (CHEN JEREMY [TW]) 1 April 2004 (2004-04-01) * claim 1; figure 1 *	1	TECHNICAL FIELDS SEARCHED (IPC)
A	EP 0 135 812 A (WINTER OPTIK [DE]) 3 April 1985 (1985-04-03) * claim 1; figures 1,2 *	1	A42B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 25 May 2007	Examiner D'Souza, Jennifer
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 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 10 2717

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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25-05-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6047409	A	11-04-2000	NONE	
DE 3604813	C1	01-10-1987	NONE	
DE 3341407	A1	05-07-1984	IT 1155224 B	21-01-1987
DE 4302959	C1	06-10-1994	NONE	
US 4698856	A	13-10-1987	DE 3762383 D1 EP 0261299 A1	31-05-1990 30-03-1988
DE 20319624	U1	01-04-2004	NONE	
EP 0135812	A	03-04-1985	DE 8325066 U1	14-02-1985