

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



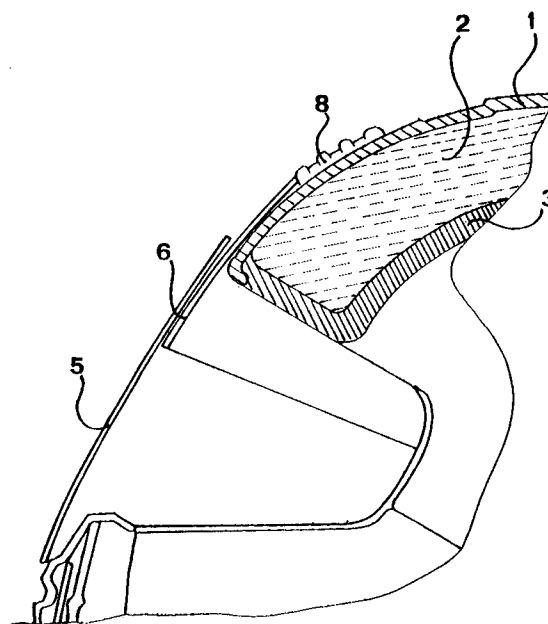
(11) Publication number:

0 590 255 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **93111512.5**(51) Int. Cl.⁵: **A42B 3/22**(22) Date of filing: **17.07.93**(30) Priority: **01.10.92 IT MI922276**(43) Date of publication of application:
06.04.94 Bulletin 94/14(84) Designated Contracting States:
BE CH DE ES FR GB LI SE(71) Applicant: **NOLAN HELMETS S.p.A.**
Via Capitani di Mozzo, 12/16
I-24030 Mozzo BG(IT)(72) Inventor: **Gnocchi, Gabrio, Nolan Helmets**
S.p.A.
Via Capitani di Mozzo, 12/16
I-24030 Mozzo BG(IT)(74) Representative: **Trupiano, Roberto**
BREVETTI EUROPA S.r.l.
Piazza Bernini, 6
I-20133 Milano (MI) (IT)(54) **Crash-helmet for motorcyclists and the like, provided with adjustable means for screening incident light rays.**

(57) Crash-helmet for motorcyclists and sportspeople in general, of the type constituted by a rigid cap (1) provided with a protection and comfort padding (2,3), with a front opening in correspondence of the eyes, and comprising a first visor (5) of high transmittance transparent material and a second visor (6) of low transmittance transparent material; both visors (5,6) are raisable by hand operating from the outside of the helmet the suitably placed means.

**FIG. 1****EP 0 590 255 A1**

The object of this invention is a crash-helmet for motorcyclists and sportspeople in general, provided with adjustable means for screening incident light rays and which allow therefore to create, both in the natural light and with a strong light radiation, as well as in the artificial light, the best conditions for a good vision, indispensable for safety and comfort reasons, particularly when one is driving fast vehicles, such as motorcycles, sports cars and the like.

PRIOR ART

As known, crash-helmets for motorcyclists and in general for people taking part in sports competitions that require the use of crash-helmets, are realized in form of full cap, which, as is the case with integral helmets, is provided in the front part, in correspondence of the eyes, with an opening which can be closed by means of a transparent raisable and/or removable visor. Normally, helmets have a cap or external shell of rigid and resistant material, such as polycarbonate or the like or of composite materials, internally lined with a safety padding and with a covering of soft material constituting a comfort padding. Also the helmets of the open type, commonly called "Jet" or "Demijet", have similar structures. These helmets have a particular structure and a wrap-around form, without - as far as possible - external surface unevennesses, protrusions or the like, both for safety reasons and to satisfy specific aerodynamic requirements.

The visor is normally realized with high transmittance colourless transparent materials, such as to permit a good visibility even in conditions of middle or even very low light conditions, as for instance at night or in artificially illuminated tunnels, so that safety and comfort in the vehicle driving are ensured even when the environment conditions are not very favourable. The transparency characteristics of the visor, together with those of mechanical resistance, are defined according to specific norms provided with in each country on the basis of safety criteria for helmet users and towards third parties.

Visors, which, as said, have to satisfy requirements of safety and therefore of high transparency even in condition of poor or in any case non optimal light, have a drawback in that with high radiation and high light intensity, such as for instance in bright sunshine, in summertime, in particularly sunny geographical regions and the like, cannot absorb a quantity of light rays sufficient and such as to ensure to the vehicle driver relaxing driving conditions.

Recently, also visors of photochromatic material have been proposed whose transmittance reduces with the exposure to the light rays, but these

visors do not provide sufficient safety guarantees, especially in condition of abrupt changes of the light radiation, because of the long time of activation and disactivation necessary.

OBJECTS OF THE INVENTION

Object of this invention is the realization of a crash-helmet provided with means suitable to regulate the screening of incident light rays in function of the light conditions, and therefore such as to ensure comfort and drive safety in any light condition.

Another object of the invention is the realization of a crash-helmet provided with means allowing to easily and rapidly adjust the screening of light rays even in condition of abrupt change of the environment light, such as for instance the entry and/or exit from tunnels, the passage from sunny to shadow zones and the like.

Still another object of this invention is the realization of a crash-helmet provided with means allowing to regulate the screening of light rays without altering the characteristics of aerodynamics of the helmet.

DESCRIPTION OF THE INVENTION

These and still other objects and relevant advantages which shall be illustrated in the following are obtained with a crash-helmet for motorcyclists and sportspeople in general, of the type constituted by a cap of rigid material, provided with safety padding and comfort padding and with an opening placed in correspondence of the eyes, which helmet, according to the present invention, comprises:

- a first visor made of high transmittance transparent materials, suitable to permit an excellent visibility even in condition a low external light, said first visor being of such dimensions as to completely cover said opening present in correspondence of the eyes and raisable and lowerable through rotation on special pins provided on the opposite sides of said cap;
- a second visor made of low transmittance transparent materials, suitable to absorb to a great extent the incident light rays, said second visor being of such dimensions as to cover at least the upper part of said opening and being raisable or lowerable through rotation on said pins provided at the sides of said cap.

Both visors can be raised or lowered by hand-operating special devices suitably provided and easily manoeuvrable from the outside of the helmet; for instance, the first high transmittance visor can be manoeuvred and fixed in the wished posi-

tion by means of screw-adjustable knurled ring nuts, adjustable, of a known type, provided directly in correspondence with the side pins on which the visor is rotatably hinged. The second low transmittance visor can be advantageously manoeuvred by hand-operating a sliding knurled element provided outside the cap and integral with said second low transmittance visor through a slit/guide made in the front part of the cap, said knurled element being translatable along said slit/guide and placeable in the wished position by means of special stops and/or stop positions provided along said slit.

It is apparent, this second visor can be raised and lowered with great rapidity and easiness by the helmet user, without interrupting the run of the vehicle, and using for a very short time one only hand, so that the user can screen the light rays at any moment and as he wishes and even abruptly, for instance when entering in tunnels and/or passing from tunnels into very sunny zones, or when crossing at night from far off other vehicles with high beams, and in any situation whatever of abrupt passage from a strong light radiation area to a poor light area and vice-versa.

Said second visor may preferably concern only the upper part of the front opening of the helmet; in fact, the low transmittance visor is normally lowered to absorb intense light rays falling from above.

Said second visor is preferably placed in the inner part of the helmet, at the back of said first visor, so as to be covered and protected by the first visor and not to constitute an element of wind resistance, in particular in high speed runnings, with ensuing difficulties for its positioning, keeping in position and with ensuing alteration of the conditions of aerodynamics of the helmet.

According to a particular embodiment of this invention, the first and second visors are "disappearing" raisable into a special housing or hollow space provided between the cap and the safety padding, above the helmet opening.

Said second visor can be advantageously made of any plastic material having high properties of absorption of light rays, of a known type and usually utilized for the making of spectacles and visors suitable to protect the eyes from intense light sun rays and even provided with material mirror-treated on the surface. There are normally utilized materials that allow for a transmittance of incident light rays comprised between 80% and 25%.

The crash-helmet according to this invention is constituted in particular by an integral type helmet for motorcyclists, drivers of racing cars and the like.

PREFERRED EMBODIMENT FORM

The invention is described more in detail in the following, according to a preferred non exclusive embodiment, with reference to the attached drawings, which are to be construed as being only indicative and non limitative, wherein:

Fig. 1 shows schematically a median section of the front upper part of the helmet according to this invention, with a first visor in lowered position and the second visor in partly raised position,

Fig. 2 shows schematically a median section of the front upper part of the helmet always according to this invention, of the "disappearing" type, with both the first and the second visor in lowered position,

Fig. 3 is the same median section of Fig. 2, but with both visors in raised position, while

Fig. 4 is the same median section of Fig. 2 and Fig. 3, but with the first visor in lowered position, on complete closure of the opening placed in correspondence of the eyes and the second visor raised.

With reference to such figures, the helmet is constituted by the rigid external cap 1, inside which the safety padding 2 with the associated comfort padding 3 are provided.

The first visor 5 is made of high transmittance materials and is suitable to completely close the helmet opening, while the second visor 6 is made of high light radiation absorption materials, and is suitable to cover, once lowered, the upper part of the helmet opening. Both visors 5 and 6 are raisable and/or lowerable by rotation on pins placed at the sides of the cap, non represented on Fig. 1 and indicated by 7 in figures 2 to 4. Visor 5 is manoeuvred by operating directly on the visor or through special ring nuts of known type (non represented), provided in correspondence of pins 7. Visor 6, which in the embodiment forms illustrated in the drawings is inside the helmet with respect to visor 5 and at the back of the latter, is manoeuvred by operating directly the knurled element 8, integral with the visor and sliding in a special slit/guide provided in the front part of the cap; besides, the knurled element can be brought to the wished position by means of special stops and/or stop positions provided along said slit.

In the "disappearing" type, shown in Fig. 2, 3 and 4, in the front part of the helmet the hollow space or cavity 4 is provided, suitable to contain until disappearance, when in raised position, the first visor 5 and the second visor 6, independent on one another.

The visor 6, which is placed in the inner part with respect to visor 5, is manoeuvred by operating the knurled elements 8, integral with visor 6 by

means of peduncle 9 which slides in slit 10, provided in the cap, and is guided by it.

Obviously, changes and variants structurally and functionally equivalent may be made to the above described invention, all of which fall within the protection scope of said invention.

Claims

1. Crash helmet for motorcyclists and sportspeople in general, of the type constituted by a cap of rigid material, said cap being provided with a safety padding and a comfort padding and with a front opening in correspondence of the eyes, characterized in that it comprises:
 - a first visor of high transmittance transparent materials, suitable to permit an excellent visibility even in conditions of low external light, said first visor being of such dimensions as to completely cover said opening provided in correspondence of the eyes and raisable or lowerable by rotation on two suitable pins placed on the opposite sites of said cap;
 - a second visor of low transmittance transparent material, suitable to absorb to a high amount the incident light rays, said second visor being of such dimensions as to cover at least the upper part of said opening and rotatably raisable or lowerable on said pins placed at the sides of said cap.
2. Crash helmet according to claim 1, characterized in that said first and said second visors are "disappearing" raisable into a special hollow space or cavity provided between the cap and the safety padding, above said opening placed in correspondence of the eyes.
3. Crash-helmet according to claim 1, characterized in that said second visor is manoeuvred by operating a knurled sliding element placed within the cap and integral with said second visor through a slit/guide provided in the front part of said cap, said knurled element being translatable along said slit/guide and brought to the position wished by means of special stops and/or stop positions provided along said slit.
4. Crash-helmet according to claim 1, characterized in that the dimensions of said second visor are such as to cover the upper part of said front opening of the helmet.
5. Crash-helmet according to claim 1, characterized in that said second visor is made of materials suitable to allow for a transmittance

of incident light rays comprised between 80 and 25%.

6. Crash-helmet according to claim 1, characterized in that said second visor is installed in the internal part of the helmet at the back of said first visor, so as to be covered and protected by said first visor when the latter is in lowered position.
7. Crash-helmet according to claim 1, characterized in that said helmet is a helmet of the integral type for motorcyclists, racing car drivers and the like.

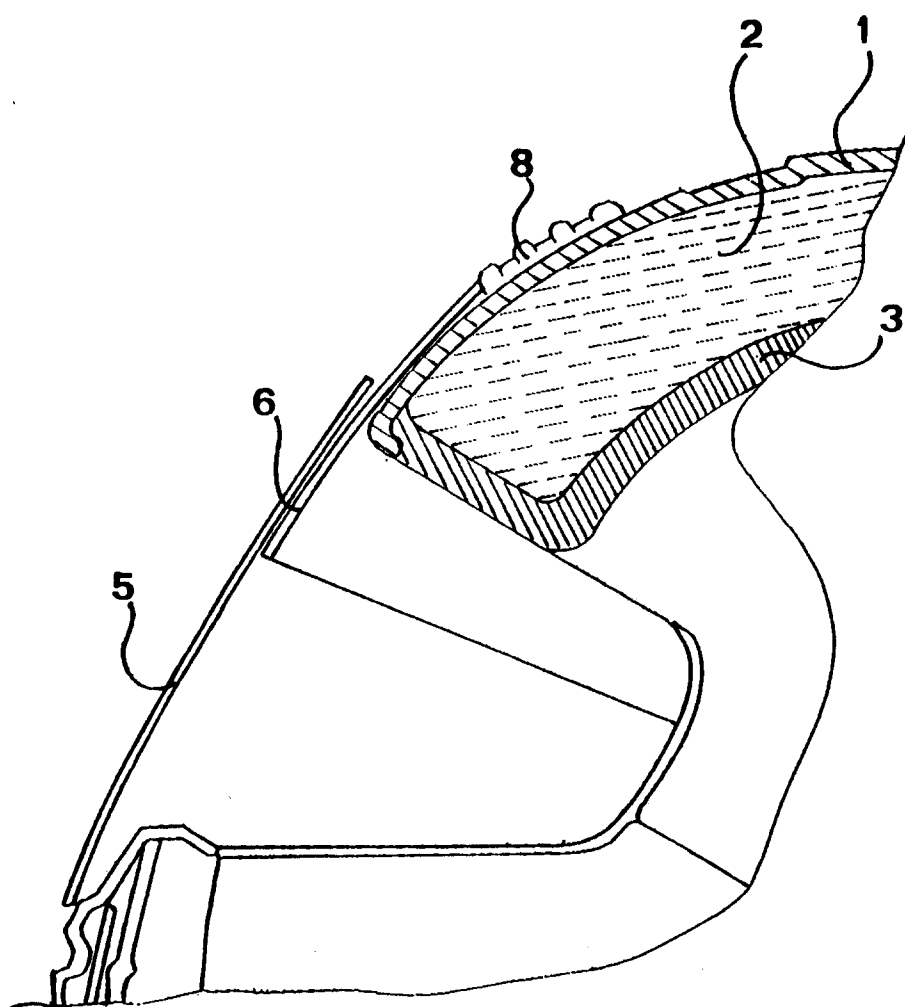


FIG.1

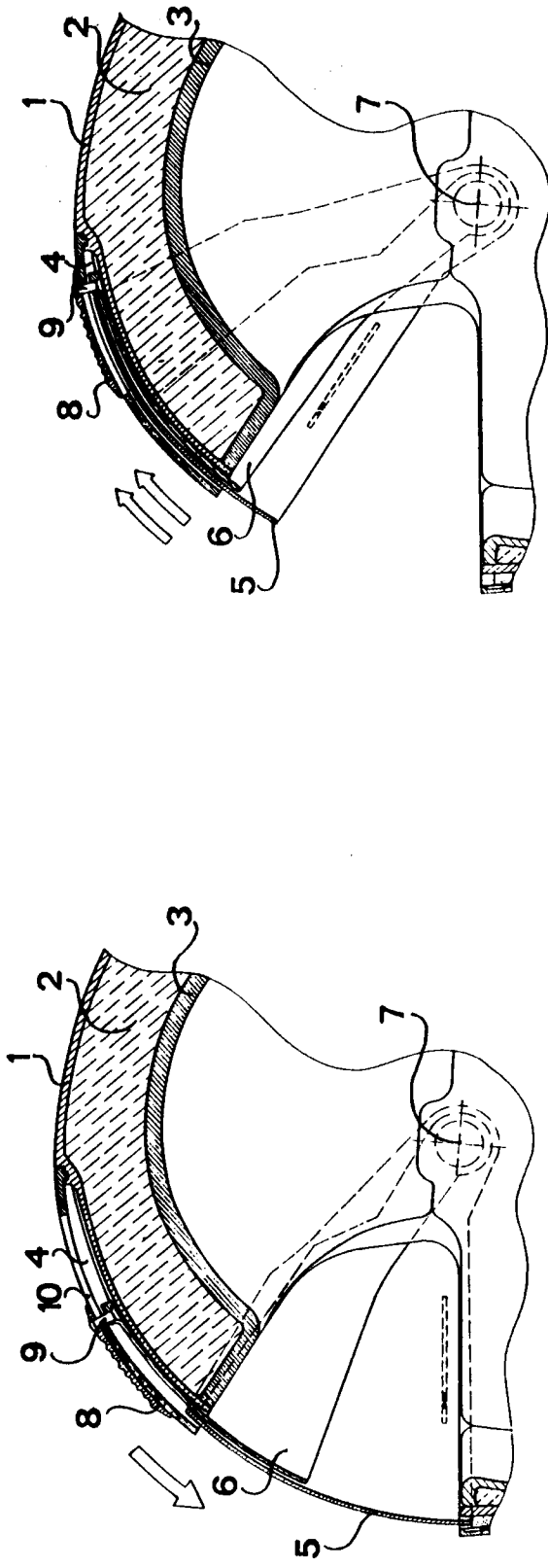


FIG. 2

FIG. 3

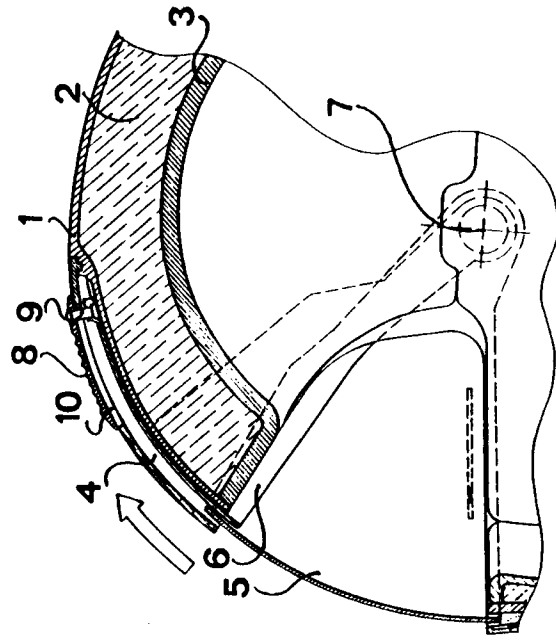


FIG. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 11 1512

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.5)
X	WO-A-87 04323 (J. DEMIR) * page 2, line 9 - line 18 * * page 2, line 38 - page 3, line 17 * * page 12, lines 21 - 25, 31 - 33 * * claims 1,4,5; figures 3,4 *	1,4-7	A42B3/22
A	---	2,3	
X	DE-U-83 33 346 (BAYERISCHE MOTOREN WERKE AG) * page 2, line 11 - page 3, line 14 * * claims; figure *	1,4-7	
A	---	2,3	
X	DE-A-35 17 411 (BAYERISCHE MOTOREN WERKE AG) * column 1, line 66 - column 2, line 1 * * column 2, line 41 - line 51 * * column 2, line 59 - column 3, line 9 * * column 3, line 67 - column 4, line 32 * * figures 5,6 *	1,4-7	
A	---	2,3	
A	FR-A-2 532 528 (A. GALET) ---		TECHNICAL FIELDS SEARCHED (Int.Cl.5) A42B
A	DE-U-70 35 512 (FA. HANS RÖMER) ---		
A	FR-A-2 626 149 (J. MARQUES) ---		
A	US-A-3 491 371 (A. DE ANGELIS) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 January 1994	Examiner BOURSEAU, A
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			