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(54) **PROTECTIVE HELMET PROVIDED WITH ANTI-DAZZLE VISOR**

SCHUTZHELM MIT BLENDSCHUTZVISIER

CASQUE DE PROTECTION COMPORTANT UNE VISIÈRE ANTI-ÉBLOUISSEMENT

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## Description

### Field of the invention

[0001] The present invention concerns a protecting helmet, preferably for motorcycle use, provided with an inner anti-dazzle visor or sun visor, user-operated in an assisted way.

### BACKGROUND ART

[0002] It is known art realizing protecting helmets for motorcycle use or, generically, usable on transport means preferably not having passenger compartment such as motorcycles, scooters, snow mobiles, racing cars, etc., all provided with a first transparent visor, for example equipped with a fog-resistant device of Pinlock® type, adapted to protect the user's face against the contrary air flow and/or various outside environment agents, such as for example the wind, the rain or possibly insects, and with a second semi-transparent visor, for example a burnished or mirrored one having the function of user's eye protection against sun beams and usually named "sun visor" or "anti-dazzle visor".

[0003] More in detail, both the first transparent visor and the second anti-dazzle visor are usually pivoted to the outer shell of the protecting helmet, so that the anti-dazzle visor is arranged in the inside, i.e. more in proximity of the user's face than the transparent one surmounting such an anti-dazzle visor, if necessary during use, at the front opening of the protecting helmet.

[0004] Obviously, both the visors can be manually moved by the user between a raised position, in which they do not interfere with the front opening of the helmet, and a lowered position in which, on the contrary, they interfere with such a front opening to protect the user's face, or at least the eyes.

[0005] For example, the Italian Patent IT 1177250 B in the name of BMW describes such a protecting helmet for motorcycle use, wherein a colored anti-dazzle visor, pivoted to the outer shell of the helmet, is surmounted by a transparent protecting visor and can be moved by the user from a raised position, in which it is housed in a pocket obtained under the outside helmet shell, and a lowered position, in which it protects the user's eyes against the sun beams, and vice versa.

[0006] Usually, the inner anti-dazzle visor is provided with a manual control arranged on a side of the outer shell of the protecting helmet, such that to be manually user operated.

[0007] The International Patent Application WO 2008/034486 A1 in the name of Locatelli describes, for example, a mechanism manually controlling the anti-dazzle visor of a protecting helmet for motorcycle use, wherein an activating slider connected by levers and rods to the aforesaid anti-dazzle visor pivoted to the outside shell of the helmet, is arranged at a lower side end of the same outer shell such that the manual user access is aided.

[0008] The use of manual controls for raising or lowering the anti-dazzle visor, although being effective and reliable, proved to be sometimes inadequate to fulfill the user's safety needs, due to the impossibility of quickly and safely raise or lower such an anti-dazzle visor, when the user of the protecting helmet is running and passes through a poor brightness area, for example a tunnel, towards an area with too much brightness, such as for example an area in which sun beams hit the same user on front, or vice versa.

[0009] In fact, with the herein reported helmets of the known art and, most of all, in case wherein the user is driving a motor vehicle provided with handlebar having two arms, the sudden change of brightness conditions during the run forces the user to take away at least one hand from the handlebar in order to quickly activate the anti-dazzle visor, otherwise to accept a temporary worsening of the visual capability by postponing the raising or lowering of such an anti-dazzle visor, with a great worsening of the run safety.

[0010] Motorized controlling devices for raising/lowering the outer transparent visor of a protecting helmet are further known.

[0011] These devices, such as for example that one described in CA 2124780 (Fisk), provide for the integration of an electric motor, driven by a respective battery and provided with its own automatic controller, in the shell of the protecting helmet and for the raising or lowering of the transparent visor of the same helmet by the motor itself, depending on a corresponding manual control sent by the user through an appropriate remote control assembled on the vehicle itself.

[0012] Such a solution, being however not applied to an anti-dazzle visor, although allowing a reliable raising of the outer transparent visor of a protecting helmet, anyway involves the user taking away one hand, or at least part thereof, from the vehicle guide in order to operate the remote control and thus to send the control of raising or lowering the same transparent visor to the electric motor.

[0013] Furthermore, at most such a solution must fulfill the need of keeping the outer transparent visor raised or lowered also in a position intermediate between the completely raised one and the completely lowered one, without the need of suddenly raising or lowering it. Hence, at most the known motorized devices for the transparent visor provide for a motion transmission from the electric motor to the outer transparent visor occurring through gears with convenient size, which allow the same transparent visor reaching one or more predefined angular positions, but without assuring the quickness of raising or lowering the visor itself.

[0014] US 2013/031699 discloses a safety helmet with a manually operated anti-dazzle visor.

[0015] It is therefore an object of the present invention to implement a protecting helmet of the type provided with an anti-dazzle visor, or sun visor, not presenting the drawbacks of the known prior art before complained.

**[0016]** Therefore, it is an object of this invention is to provide a protecting helmet having an anti-dazzle visor able to be raised or lowered very quickly, without compromising the user's guide safety and being very reliable.

**[0017]** Another object of the present invention is to implement a protecting helmet provided with an anti-dazzle visor that, in addition to guarantee reliability and safety, is also compact and does not require great maintenance.

### Summary of the invention

**[0018]** These and other objects are achieved by the protecting helmet preferably for motor vehicles or vehicles in general and, in particular, for those not having passenger compartment, according to the first independent claim and the subsequent dependent claims.

**[0019]** The protecting helmet, preferably for motorcycle use or for vehicles in general, according to the present invention comprises at least one inner shell made of a shock-absorbing material, such as for example expanded polystyrene or expanded polypropylene (EPP), the inner shell being covered with an outer shell, for example made of polycarbonate, fiber glass, carbon fiber or Kevlar, and delimiting a front opening of the helmet, as well as at least one anti-dazzle visor constrained to the protecting helmet so that to rotate and/or translate with respect to the outer shell and to move between a lowered position interfering, at least partially, with the aforesaid front opening, and a raised position disengaging from such a front opening, and vice versa. Advantageously, the protecting helmet comprises electrically operated motor means, for example constituted by one or two electric stepper motors, to operate the anti-dazzle visor from its lowered position to its raised position, or vice versa, and an automatic control unit vocally operated to control the motor means, i.e. to control the operation thereof.

**[0020]** As the person skilled of the art can easily understand, the use of at least one electric motor for operating the anti-dazzle visor of a protecting helmet for vehicles, vocally controlled by the user of the same helmet, allows greatly increasing the run safety since the solution object of the present invention, when the brightness conditions change, allow the user to quickly raise or lower the anti-dazzle visor (sun visor) simply by speaking a predefined voice control.

**[0021]** According to a preferred aspect of the present invention, the electrically operated motor means for the anti-dazzle visor can comprise a direct current electric motor of stepper type, preferably driven by a battery.

**[0022]** Moreover, in a preferred embodiment of the present invention, these motor means can further comprise a translationally-operated driving rod, or pin, and a lever system kinematically connecting the anti-dazzle visor to such a driving rod. Preferably, the lever system is integral with the anti-dazzle visor and comprises at least one hinge pin to hinge the anti-dazzle visor itself to the outer shell of the helmet, a load arm constituted by the visor portion engaging the front opening of the helmet,

and an effort arm constituted by a side appendage of said anti-dazzle visor which is opposed, with respect to said at least one pin, to the portion of the anti-dazzle visor engaging the front opening, and wherein the effort arm is constrained to the afore said driving rod, or pin.

**[0023]** According to another aspect of the present invention, the afore said motor means comprise a transforming apparatus to transform the rotary motion of the input shaft of the aforesaid electric motor into the translatory motion of the driving rod, or pin, preferably of the nut screw and worm type.

**[0024]** In a preferred embodiment of the protecting helmet according to the present invention, the motor means are further powered by a battery, or accumulator, able to be maintained in the correct state of charge, for example during the helmet use, by at least one photovoltaic panel applied on the outer shell of the helmet itself.

**[0025]** The vocally-operated automatic control unit of the helmet according to the present invention preferably comprises at least one microphone facing the inside of the helmet, i.e. able to receive the human voice inside the latter, and a preferably programmable processing system provided with RAM and/or ROM memory and able of vocal recognition, i.e. provided with a software able to perform the user's voice analysis, in addition to accurately control the electric motor of the aforesaid motor means.

**[0026]** In a further embodiment, the protecting helmet object of this invention can provide the afore said motor means and the respective control unit for being at least partially housed in seats obtained in the inner shell, under the corresponding outer shell.

### DESCRIPTION OF THE FIGURES

**[0027]** Some preferred embodiments of the protecting helmet according to the present invention will be herein-after described, for purposes of illustrations only and not limitative, referring to the attached figures, in which:

figure 1 is a schematic side section view of a protecting helmet provided with an anti-dazzle visor (or sun visor);

figure 2 is a lateral view of a protecting helmet according to a particular aspect of the present invention;

figure 3 is a schematic side view of a protecting helmet according to an aspect of the present invention, some inner components of the same helmet being highlighted;

figure 4 is still a schematic side view of a protecting helmet according to a characteristic aspect of the present invention, some other inner components of the same helmet being highlighted; and

figure 5 is a block diagram schematizing the control system of the protecting helmet in a specific embodiment thereof.

## DETAILED DESCRIPTION OF SOME PREFERRED EMBODIMENTS OF THE PRESENT INVENTION

**[0028]** Referring at first to figure 1, it is generically depicted a protecting helmet 1, preferably for motorcycle use, of the type comprising - as known in the art - an outer shell 2, for example made of polycarbonate, glass fiber, carbon fiber, Kevlar or other substantially rigid material, and an inner shell 3, for example made of expanded polystyrene or expanded polypropylene (EPP) or other material able of impact absorption, arranged in a position under the outer shell 2 and intended for absorbing possible shocks the helmet 1 can be subjected to. According to the known art, under the inner shell 3 there is a pad 4, for example made of foam rubber, intended for increasing the user's comfort.

**[0029]** The outer shell 2, together with the inner shell 3, defines a lower opening for fitting the helmet 1 itself and a front opening 10 intended to overlap at least partially to the user's face.

**[0030]** The protecting helmet 1 further comprises a transparent outer visor 5, for example made of polycarbonate, acting as face protection against the outer environment (for example, against the front air flow or possible bad weather) and an inner semi-transparent visor 6 also made of polycarbonate but smoked or "mirrored", with the function of anti-dazzle or sun visor.

**[0031]** A safety strap 7, arranged for closing the opening for fitting the protecting helmet 1 and named "chin strap", completes the helmet 1 itself.

**[0032]** Herein and in the following, it has to be noted that the term "anti-dazzle visor" will be used, widely speaking, as a synonym of the "sun visor" term.

**[0033]** In the depicted embodiment of the protecting helmet 1, the anti-dazzle visor 6 is arranged on the inside with respect to the transparent visor 5, i.e. in a position closer to the user's face, and is rotatably and translatably shaped and assembled on the protecting helmet 1 so that to be moved, with respect to the outer shell 2, between a raised position in which it does not interfere with the front opening 10 of the helmet 1, and a lowered position in which it interferes partially with such a front opening 10, so that to protect the user's eyesight against possible high-intensity light rays, and vice versa.

**[0034]** Also the transparent outer visor 5, as known in the art, is assembled on the helmet 1 so that to be moved from a position interfering with the front opening 10 of the helmet 1 to a position disengaging from such a front opening 10, and vice versa.

**[0035]** Preferably, both the outer transparent visor 5 and the inner anti-dazzle visor 6 are pivoted on the outer shell 2 of the protecting helmet 1, by respective couple of coaxial pins 8 and 9 arranged on the sides of the same helmet 1 (see, for example, figure 3), so that the visors can be rotated around these pins 8, 9.

**[0036]** In particular, according to the known art, the outer transparent visor 5 can be manually operated by the user so that to rotate from its raised position to its lowered

position, and vice versa.

**[0037]** Although a protecting helmet 1 provided with two visors 5, 6, a transparent one and an anti-dazzle one, has been shown herein, the present invention can be applied also to a protecting helmet 1 provided with only one visor of the anti-dazzle 6 type, such as for example the anti-dazzle visor of a so-called "jet" helmet, as the person skilled of the art will immediately understand.

**[0038]** Analogously, although an embodiment of a protecting helmet 1 has been shown herein, in which the anti-dazzle 6 is on the inside with respect to the outer transparent visor 5 and both the visors 5, 6 are pivoted to the outer shell 2 of the helmet, every other reciprocal arrangement of these visors 5, 6 and every other constraint thereof to the protecting helmet 1, allowing the raising and the lowering of at least the anti-dazzle 6, can equally be implemented in the helmet 1 without departing from the protection scope of the present invention.

**[0039]** Moreover, also if the figure 1 herein reported depicts a solution in which the anti-dazzle visor 6 in its raised position can be housed in a seat obtained in the inner shock-absorbing shell 3, any other solution known in the art, such as for example the arrangement of the anti-dazzle visor 6 in a position outside of the same outer shell 2 or in a position partially interposed between the inner shell 3 and the outer shell 2, shall be used in the helmet 1 herein described, without departing from the protection limits claimed for the present invention.

**[0040]** Advantageously, according to the present invention, the protecting helmet 1 herein depicted as an example further comprises electrically operated motor means 11, 12, 13 that, once connected to the anti-dazzle visor 6, will allow the assisted movement of the latter from its position of at least partial interference with the front opening 10 of the helmet 1 to its position of disengagement from such a front opening 10, and vice versa.

**[0041]** Moreover, the protecting helmet 1 according to the invention further comprises a vocally-operated automatic control unit 18, 19 operatively connected to the aforesaid motor means 11, 12, 13 to adjust the working thereof and then allow the automatically adjusted displacement of the anti-dazzle visor 6 between the two aforesaid positions of interference and disengagement from the front opening 10 of the protecting helmet 1 itself.

**[0042]** In the particular embodiment of the present invention herein depicted, referring particularly to figures 2 and 3, the motor means 11, 12, 13 and the respective vocally-operated automatic control unit 18, 19 are all powered by at least one battery, for example contained in a housing 16 obtained in a back area of the outer shell 2, and by at least one photovoltaic panel 22 for example arranged on an upper area of the same outer shell 2 of the helmet 1.

**[0043]** More in detail the photovoltaic panel 22, that can be of thin-film flexible type, can be for example connected through an appropriate transformer to a battery power supply preferably constituted by an accumulator of the lithium-ion type, and in turn such a battery can be

electrically connected, through an appropriate circuitry, both to the motor means 11, 12, 13 and to the respective vocally-operated automatic control unit 18, 19.

**[0044]** In this way, the motor means 11, 12, 13 and the automatic control unit 18, 19 are preferably direct-current powered indirectly by the photovoltaic panel 22 and, directly, by the lithium-ion battery or accumulator.

**[0045]** It has to be observed that the herein depicted protecting helmet 1, according to a characteristic aspect of the present invention, further comprises an outer battery charging system allowing to aforesaid battery to be charged, for example constituted by a lithium-ion accumulator, by an outer power supply connectable to the latter through an appropriate connector made outside of the outer shell 2 of the helmet 1.

**[0046]** Such a supplying connector, together with the connector for connecting and controlling the automatic control unit 18, 19, can be preferably housed in an appropriate header 20 placed on the bottom on the outer shell 2 of the helmet 1.

**[0047]** Although a hybrid system for powering the motor means 11, 12, 13 and the respective automatic control unit 18, 19 of the protecting helmet 1 have been herein depicted according to the present invention, it should be clear that any other supplying system known in the art can be alternatively used, for example based on photovoltaic panels only or one rechargeable battery only or any other known electric power supply.

**[0048]** In the same way, although it has been herein referred to a direct current supply, it is possible to implement an alternating current supply at least for the motor means, without departing from the protective scope of the invention herein described.

**[0049]** In the preferred embodiment of the present invention herein depicted, the motor means 11, 12, 13 comprise a direct-current electric motor 11 constrained, for example by a hinge, to the outer shell 2 of the helmet 1 and that can be, advantageously, of the stepper type so as to allow an accurate, i.e. extremely precise, operation adjustment of the respective automatic control unit 18, 19.

**[0050]** As can be seen in the embodiment shown in figure 4, the electrically operated motor means further comprise a driving rod or pin 13 at least translationally operated along a reciprocating rectilinear motion, and a lever system 9, 14, 15 transmitting the motion of the driving rod 13 to the anti-dazzle visor 6.

**[0051]** The driving rod 13 is kinematically connected to the electric motor 11 by a transforming apparatus 12 to transform the rotary motion of the output shaft of the same electric motor 11 into the translatory motion of such a driving rod, or pin, 13. As schematically depicted, such a transforming apparatus 12 can be of the nut screw and worm type, wherein the nut screw rotation, due to the motor 11 and provided with apposite nut screw engaging the thread of the worm, causes the roto-translation of the worm itself and, in particular, the reciprocating translation of such worm as the rotation way of the nut screw alter-

nates.

**[0052]** The worm of the transforming apparatus 12 is constrained, for example by a fork, to an end of the driving rod or pin 13, the latter being in turn constrained at its other end to the afore said lever system 9, 14, 15, for example by a pin.

**[0053]** According to a preferred aspect of the present invention such a lever system can be integral with the anti-dazzle visor 6, i.e. it can be made in one piece with the screen of the latter and can therefore comprise a fulcrum coincident with the hinge pin 9 of the anti-dazzle visor 6 hinging to the outer shell 2 of the helmet 1, and two substantially coaxial arms arranged at opposite sides with respect to the afore said pin 9.

**[0054]** More in detail, referring to figure 4, the lever system herein denoted comprises a load arm 14 constituted by at least part of the portion (screen) of the anti-dazzle visor 6 engaging the front opening 10 of the helmet 1, and in particular is constituted by the upper part of such a screen of the anti-dazzle visor 6, and an effort arm 15 constituted by a side appendage of the screen of the anti-dazzle visor 6 itself. Such an effort arm 15 is constrained to the driving rod 13, for example by a hinge.

**[0055]** In this way, as it will be evident to the person skilled of the art, the operation of the electric motor 11 causes the rotation of the nut screw and the corresponding roto-translation of the worm of the transforming apparatus 12 in a given way and, consequently, the translation of the driving rod or pin 13. The latter in its turn, thanks to the constraint with the afore said effort arm 15, causes the rotation of the lever system 9, 14, 15 and, therefore, the raising or lowering - depending on the translation way of the driving rod 13 - of the anti-dazzle visor 6 with respect to the front opening 10 of the protecting helmet 1.

**[0056]** It has to be observed that other type of electric motors can be alternatively used with the lever system 9, 14, 15, for example of linear type, and other type of means for transmitting the motion from the electric motor 11 to the anti-dazzle visor 6 can be alternatively used without departing from the protective scope herein claimed.

**[0057]** It has to be further observed that, even if a protecting helmet 1 is herein described and provided with electrically operated motor means 11, 12, 13 comprising only one direct-current electric motor 11 arranged on a side of the outer shell 2 of the helmet 1, it is possible as well the use of two direct-current electric motors of the stepper type, which are arranged at the two sides of the outer shell 2 and mutually synchronized.

**[0058]** According to a preferred aspect of the present invention, the afore said vocally-operated automatic control units 18, 19 for adjusting the motor means 11, 12, 13, referring to the scheme of figure 3, comprises at least one microphone 19 arranged so that to capture the user's voice inside the protecting helmet 1, and a processing system 18 obviously provided with a microprocessor, with at least one system bus and a respective memory

of RAM and/or ROM type, which is operatively connected to the afore said microphone 19 to capture and process the signals coming from such a microphone 19 in order to detect one or more voice controls and translate them into operative controls for the motor means 11, 12, 13.

**[0059]** For this purpose, the control unit 18, 19 comprises a first speech recognition module and a second controlling/driving module to control/drive the electrically operated motor means and, in particular, the electric stepper motor 11, and the afore said processing system 18 is of programmable type.

**[0060]** It has to be noticed that with the term "module" it is herein referred to any system known in the art of hardware and/or software type and, for example, implemented by respective circuit boards driven by the afore said processing system 18, which allows the same processing system 18 to be interfaced with outside devices, such as exactly the microphone 19 and the electric motor 11.

**[0061]** Then the vocal signals coming from the microphone 19 conveniently arranged inside the inner shell 3 to capture the user's voice, are transmitted to the speech recognition module of the control unit 18, 19 and conveniently processed and, once recognized by the processing system, for example by frequency analysis and comparison with patterns pre-stored in the system memory, are converted to driving controls to drive the output shaft of the electric motor 11 in a way or the other way, therefore causing - thanks for example to the transforming apparatus 12, the driving rod 13 and the lever system 9, 14, 15 - the controlled raising or lowering of the anti-dazzle visor 6 with respect to the front opening 10 of the protecting helmet 1.

**[0062]** For example the control unit 18, 19, thanks to the speech recognition module, will be able to recognize simple controls given by the user to the helmet, such as "Raise" or "Lower", the corresponding action of raising or lowering the anti-dazzle visor 6 following these controls thanks to the controlling/driving module of the motor means 11, 12, 13.

**[0063]** Implementing the programmability of the processing system 18 of the control unit separately from the common use of the user - for example by providing two distinct operating modes of the same processing system 18, one of "user's type" having the only possibility of giving predefined controls and the other one of "administrator type" with the exclusive possibility (for example by password) of programming the same system 18 - assures high use flexibility of the control unit, the adaptation thereof to different languages and controls, in addition to the possible use thereof with other auxiliary devices that can be possibly implemented in the herein described protecting helmet 1.

**[0064]** As mentioned, the programming of the control unit 18, 19 can be carried out from the outside of the protecting helmet 1 thanks to the possible connection of outside programming instruments, such as for example outside processors, to the afore said processing system

18 through an appropriate connector able to be housed in the aforesaid header 20.

**[0065]** Moreover, the control unit 18, 19 or the respective speech recognition module can be programmed to allow an initial step of learning the vocal controls given through the microphone 19, such that the recognition precision of the same vocal controls is increased.

**[0066]** Preferably, the motor means 11, 12, 13, the lever system 9, 14, 15 and, above all, the automatic control units 18, 19 are designed so that to allow the anti-dazzle visor 6 to be displaced only to one of the two positions completely raised, i.e. disengaged from the front opening 10 of the helmet 1, or completely lowered, i.e. partially interfering with such a front opening 10, so that the user is not allowed to move in an assisted way the anti-dazzle visor 6 to intermediate positions.

**[0067]** Still preferably, according to another aspect of the present invention, the protecting helmet 1 can comprise means 17 to manually operate the anti-dazzle visor 6, which allow the latter to be raised or lowered manually by the user, so that possible malfunctions of the motor means 11, 12, 13 or the automatic control unit 18, 19 can be compensated.

**[0068]** The motor means 11, 12, 13 and the control unit, comprising at least the microphone 19 and the processing system 18 with the respective speech recognition module and the controlling/driving module to control/drive the motor means 11, 12, 13, are preferably arranged in apposite housings obtained in the inner shock-absorbing shell 3 or between such an inner shell 3 and the outer shell 2.

**[0069]** According to a preferred aspect of the present invention as schematically shown in figure 5, the protecting helmet 1 can comprise one or more auxiliary devices operatively connected to the control unit 18, 19 and, in particular, to the processing system 18.

**[0070]** For example, the protecting helmet 1 can comprise a speaker 21 also preferably arranged in a housing obtained in the inner shell 3, that allows the control unit 18, 19 to transmit signals or information to the user or, if coupled with the radio communication system for example a Bluetooth® system and with the cooperation of the microphone 19, can allow the user to use an outside telephone device, for example, or an intercom system between the two helmets.

**[0071]** The use of a radio communication system, for example of Bluetooth® type, can further allow the above described control unit 18, 19 to be interfaced to other outside devices, for example a controlling device to control vehicle lights or to heat a thermostated jacket, thus allowing the user to control such outside devices by vocal controls without the need of taking away one hand or even only some fingers from the handlebar or steering wheel.

**[0072]** Furthermore, the protecting helmet 1 can be provided with an outside camera, not illustrated, for example fixed to the top of the outer shell 2 and able to shoot images and store them on an appropriate storing

medium. Even this outside camera can be interfaced with the afore said control unit 18, 19 and then be vocally controlled by the user of the protecting helmet 1.

**[0073]** Finally, due to the growing miniaturization of these components, the protecting helmet 1 can be further provided with an inner camera, i.e. arranged in an upper position of the helmet 1 - for example in a housing obtained in the inner shell 3 - and facing the user's face so that, once the camera has been interfaced to the control unit 18, 19, it can be used by the processing system 18 to verify the user's fatigue level and then, possibly, to allow generating an alarm signal for the same user, for example by the speaker 21.

**[0074]** Obviously, additional auxiliary devices or variations or improvements for the above described protecting helmet 1 can be made without departing from the protection scope herein claimed.

### Claims

1. Protecting helmet (1) of the type comprising at least one inner shell (3) made of a shock-absorbing material, the inner shell being covered with an outer shell (2) on the outside and delimiting a front opening (10) of the helmet, as well as at least one anti-dazzle visor (6) constrained to said protecting helmet (1) so that to rotate and/or translate with respect to said outer shell (2) and to move between a lowered position interfering, at least partially, with said front opening (10), and a raised position disengaging from said front opening (10), and vice versa, **characterized by** comprising electrically operated motor means (11, 12, 13) to operate said at least one anti-dazzle visor (6) from said lowered position to said raised position, or vice versa, and an automatic control unit (18, 19) that is vocally operated to control said motor means (11, 12, 13).
2. Protecting helmet according to claim 1, wherein said motor means comprise at least one electric motor (11) operated by a direct current source.
3. Protecting helmet according to claim 2, wherein said motor means comprise at least one direct-current electric motor of the stepper type.
4. Protecting helmet according to any one of the preceding claims, **characterized in that** said motor means comprise a translationally-operated driving rod (13) and a lever system (9, 14, 15) transmitting motion from said driving rod (13) to said anti-dazzle visor (6).
5. Protecting helmet according to claim 4, wherein said lever system (9, 14, 15) is integral with the anti-dazzle visor (6) and comprises at least one hinge pin (9) to hinge the anti-dazzle visor (6) to the outer shell (2) of the helmet (1), a load arm (14) constituted by at least part of the portion of the anti-dazzle visor (6) engaging the front opening (10) of the helmet, and an effort arm (15) constituted by a side appendage of said anti-dazzle visor (6) which is opposed, with respect to said at least one pin (9), to the portion of the anti-dazzle visor engaging said front opening (10), said effort arm (15) being constrained to the afore said driving rod (13).
6. Protecting helmet according to claim 2 and claim 4, wherein said motor means comprise a transforming apparatus (12) to transform the rotary motion of the output shaft of said at least one electric motor (11) into the translatory motion of said driving rod (13).
7. Protecting helmet according to claim 6, wherein said transforming apparatus is of nut screw and worm type.
8. Protecting helmet according to any one of the preceding claims, further comprising at least one photovoltaic panel (22) and/or at least one battery for power supplying, directly or indirectly, at least said motor means (11, 12, 13) and said automatic control unit (18, 19).
9. Protecting helmet according to claim 8, wherein said at least one battery is a lithium-ion accumulator.
10. Protecting helmet according to claim 8, wherein said at least one photovoltaic panel (22) is of flexible type.
11. Protecting helmet according to any one of the preceding claims, wherein said vocally-operated automatic control unit comprises at least one microphone (19) facing at least the inside of the helmet (1), and a processing system (18) provided with a system memory, in order to capture and process the signals coming from said at least one microphone (19).
12. Protecting helmet according to claim 11, wherein said processing system (18) is programmable.
13. Protecting helmet according to claim 11 or 12, wherein said automatic control unit comprises a speech recognition module and a control module for controlling the afore said electrically operated motor means.
14. Protecting helmet according to any one of the preceding claims, wherein said motor means (11, 12, 13) and said control unit (18, 19) are at least partially housed in seats obtained in said inner shell (3), under said outer shell (2).
15. Protecting helmet according to any one of the preceding claims, comprising at least one inner speaker

(21) and/or one inner camera and/or one outer camera and/or a radio communication system, which can be all operatively connected to said automatic control unit (18, 19).

### Patentansprüche

1. Schutzhelm (1) nach der Art eines Helmes umfassend mindestens eine Innenschale (3) aus einem stoßdämpfenden Material, wobei die Innenschale außen mit einer Außenschale (2) bedeckt ist und eine Frontöffnung (10) des Helms begrenzt, sowie mindestens ein Blendschutz-Visier (6), welches am Schutzhelm (1) so befestigt ist, dass es sich hinsichtlich der Außenschale (2) dreht und/oder verschiebt und sich zwischen einer abgesenkten, die Frontöffnung (10) wenigstens teilweise beeinflussenden Position und einer angehobenen, von der Frontöffnung (10) gelösten Position bewegt und umgekehrt, **dadurch gekennzeichnet, dass** er elektrisch betriebene Motormittel (11, 12, 13) zum Betreiben des mindestens einen Blendschutz-Visiers (6) von der abgesenkten Position in die angehobene Position oder umgekehrt umfasst, sowie eine automatische, sprachbetriebene Kontrolleinheit (18, 19) zum Steuern der Motormittel (11, 12, 13).
2. Schutzhelm gemäß Anspruch 1, wobei die Motormittel mindestens einen Elektromotor (11) umfassen, welcher von einer Gleichstromquelle betrieben wird.
3. Schutzhelm gemäß Anspruch 2, wobei die Motormittel mindestens einen Gleichstrom-Elektromotor von der Art eines Schrittmotors umfassen.
4. Schutzhelm gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Motormittel eine translatorisch betätigte Antriebsstange (13) und ein Hebelsystem (9, 14, 15) umfassen, welche eine Bewegung von der Antriebsstange (13) auf das Blendschutz-Visier (6) übermitteln.
5. Schutzhelm gemäß Anspruch 4, wobei das Hebelsystem (9, 14, 15) integral mit dem Blendschutz-Visier (6) ausgebildet ist und mindestens einen Scharnierstift (9) umfasst, um das Blendschutz-Visier (6) mit der Außenschale (2) des Helms (1) gelenkig zu verbinden, sowie einen Lastarm (14), welcher aus wenigstens einem Teil des in die Frontöffnung (10) des Helms eingreifenden Blendschutz-Visiers (6) besteht, und einen Kraftarm (15), welcher aus einem seitlichen Anhang des Blendschutz-Visiers (6) besteht, welcher hinsichtlich des mindestens einen Stifts (9) dem Abschnitt des Blendschutz-Visiers gegenüberliegt, der in die Frontöffnung (10) eingreift, wobei der Kraftarm (15) an der vorgenannten Antriebsstange (13) befestigt ist.
6. Schutzhelm gemäß Anspruch 2 und 4, wobei die Motormittel eine Transformationsvorrichtung (12) umfassen, um die Drehbewegung der Ausgangswelle des mindestens einen Elektromotors (11) in die Translationsbewegung der Antriebsstange (13) umzuwandeln.
7. Schutzhelm gemäß Anspruch 6, wobei die Transformationsvorrichtung vom Schneckenschrauben- und Schneckentyp ist.
8. Schutzhelm gemäß einem der vorhergehenden Ansprüche, weiterhin umfassend mindestens ein Photovoltaik-Panel (22) und/oder mindestens eine Batterie zur direkten oder indirekten Stromversorgung mindestens der Motormittel (11, 12, 13) und der automatischen Kontrolleinheit (18, 19).
9. Schutzhelm gemäß Anspruch 8, wobei die mindestens eine Batterie ein Lithium-Ionen-Akku ist.
10. Schutzhelm gemäß Anspruch 8, wobei das mindestens eine Photovoltaik-Panel (22) ein Panel der flexiblen Art ist.
11. Schutzhelm gemäß einem der vorhergehenden Ansprüche, wobei die sprachbetriebene, automatische Kontrolleinheit mindestens ein Mikrofon (19), welches wenigstens der Innenseite des Helms (1) zugewandt ist, umfasst sowie ein Verarbeitungssystem (18) mit einem Systemspeicher, um die von dem mindestens einen Mikrofon (19) herrührenden Signale zu erfassen und zu verarbeiten.
12. Schutzhelm gemäß Anspruch 11, wobei das Verarbeitungssystem (18) programmierbar ist.
13. Schutzhelm gemäß Anspruch 11 oder 12, wobei die automatische Kontrolleinheit ein Spracherkennungsmodul und ein Kontrollmodul zum Steuern der vorgenannten elektrisch betriebenen Motormittel umfasst.
14. Schutzhelm gemäß einem der vorhergehenden Ansprüche, wobei die Motormittel (11, 12, 13) und die Kontrolleinheit (18, 19) zumindest teilweise in Aufnahmen untergebracht sind, welche in der Innenschale (3) unter der Außenschale (2) erhalten werden.
15. Schutzhelm gemäß einem der vorhergehenden Ansprüche, umfassend mindestens einen Innenlautsprecher (21) und/oder eine Innenkamera und/oder eine Außenkamera und/oder ein Funkkommunikationssystem, welche alle mit der automatischen Kontrolleinheit (18, 19) funktionell verbunden werden

können.

### Revendications

1. Casque de protection (1) du type comprenant au moins une coque intérieure (3) réalisée en un matériau amortisseur de choc, la coque intérieure étant couverte d'une coque extérieure (2) sur l'extérieur et délimitant une ouverture avant (10) du casque, ainsi qu'au moins une visière anti-éblouissement (6) contrainte sur ledit casque de protection (1) de façon à tourner et/ou se translater par rapport à ladite coque extérieure (2) et à se déplacer entre une position abaissée interférant, au moins partiellement, avec ladite ouverture avant (10), et une position relevée se dégageant de ladite ouverture avant (10), et vice versa, **caractérisé en ce qu'il** comprend des moyens de moteur à actionnement électrique (11, 12, 13) pour actionner ladite au moins une visière anti-éblouissement (6) de ladite position abaissée à ladite position relevée, ou vice versa, et une unité de commande automatique (18, 19) qui est actionnée vocalement pour commander lesdits moyens de moteur (11, 12, 13).
2. Casque de protection selon la revendication 1, dans lequel lesdits moyens de moteur comprennent au moins un moteur électrique (11) actionné par une source de courant continu.
3. Casque de protection selon la revendication 2, dans lequel lesdits moyens de moteur comprennent au moins un moteur électrique à courant continu du type pas-à-pas.
4. Casque de protection selon l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdits moyens de moteur comprennent une bielle directrice à actionnement en translation (13) et un système de levier (9, 14, 15) transmettant un mouvement de ladite bielle directrice (13) à ladite visière anti-éblouissement (6).
5. Casque de protection selon la revendication 4, dans lequel ledit système de levier (9, 14, 15) est d'un seul tenant avec la visière anti-éblouissement (6) et comprend au moins une goupille d'articulation (9) pour articuler la visière anti-éblouissement (6) sur la coque extérieure (2) du casque (1), un bras de charge (14) constitué d'au moins une partie de la portion de la visière anti-éblouissement (6) s'engageant avec l'ouverture avant (10) du casque, et un bras d'effort (15) constitué d'un appendice de côté de ladite visière anti-éblouissement (6) qui est opposé, par rapport à ladite au moins une goupille (9), à la portion de la visière anti-éblouissement s'engageant avec ladite ouverture avant (10), ledit bras d'effort (15) étant contraint sur ladite bielle directrice (13) mentionnée ci-dessus.
6. Casque de protection selon la revendication 2 et la revendication 4, dans lequel lesdits moyens de moteur comprennent un appareil de transformation (12) pour transformer le mouvement rotatif de l'arbre de sortie dudit au moins un moteur électrique (11) en le mouvement de translation de ladite bielle directrice (13).
7. Casque de protection selon la revendication 6, dans lequel ledit appareil de transformation est du type vis à écrou et vis sans fin.
8. Casque de protection selon l'une quelconque des revendications précédentes, comprenant en outre au moins un panneau photovoltaïque (22) et/ou au moins une batterie pour alimenter électriquement, directement ou indirectement, au moins lesdits moyens de moteur (11, 12, 13) et ladite unité de commande automatique (18, 19).
9. Casque de protection selon la revendication 8, dans lequel ladite au moins une batterie est un accumulateur lithium-ion.
10. Casque de protection selon la revendication 8, dans lequel ledit au moins un panneau photovoltaïque (22) est du type flexible.
11. Casque de protection selon l'une quelconque des revendications précédentes, dans lequel ladite unité de commande automatique à actionnement vocal comprend au moins un microphone (19) en regard au moins de l'intérieur du casque (1), et un système de traitement (18) pourvu d'une mémoire système, afin de capturer et traiter les signaux provenant dudit au moins un microphone (19).
12. Casque de protection selon la revendication 11, dans lequel ledit système de traitement (18) est programmable.
13. Casque de protection selon la revendication 11 ou 12, dans lequel ladite unité de commande automatique comprend un module de reconnaissance de la parole et un module de commande pour commander lesdits moyens de moteur à actionnement électrique mentionnés ci-dessus.
14. Casque de protection selon l'une quelconque des revendications précédentes, dans lequel lesdits moyens de moteur (11, 12, 13) et ladite unité de commande (18, 19) sont logés au moins partiellement dans des assises obtenues dans ladite coque intérieure (3), sous ladite coque extérieure (2).

15. Casque de protection selon l'une quelconque des revendications précédentes, comprenant au moins un haut-parleur intérieur (21) et/ou au moins une caméra intérieure et/ou une caméra extérieure et/ou un système de radiocommunication, qui peuvent tous être connectés avec faculté d'actionnement à ladite unité de commande automatique (18, 19).

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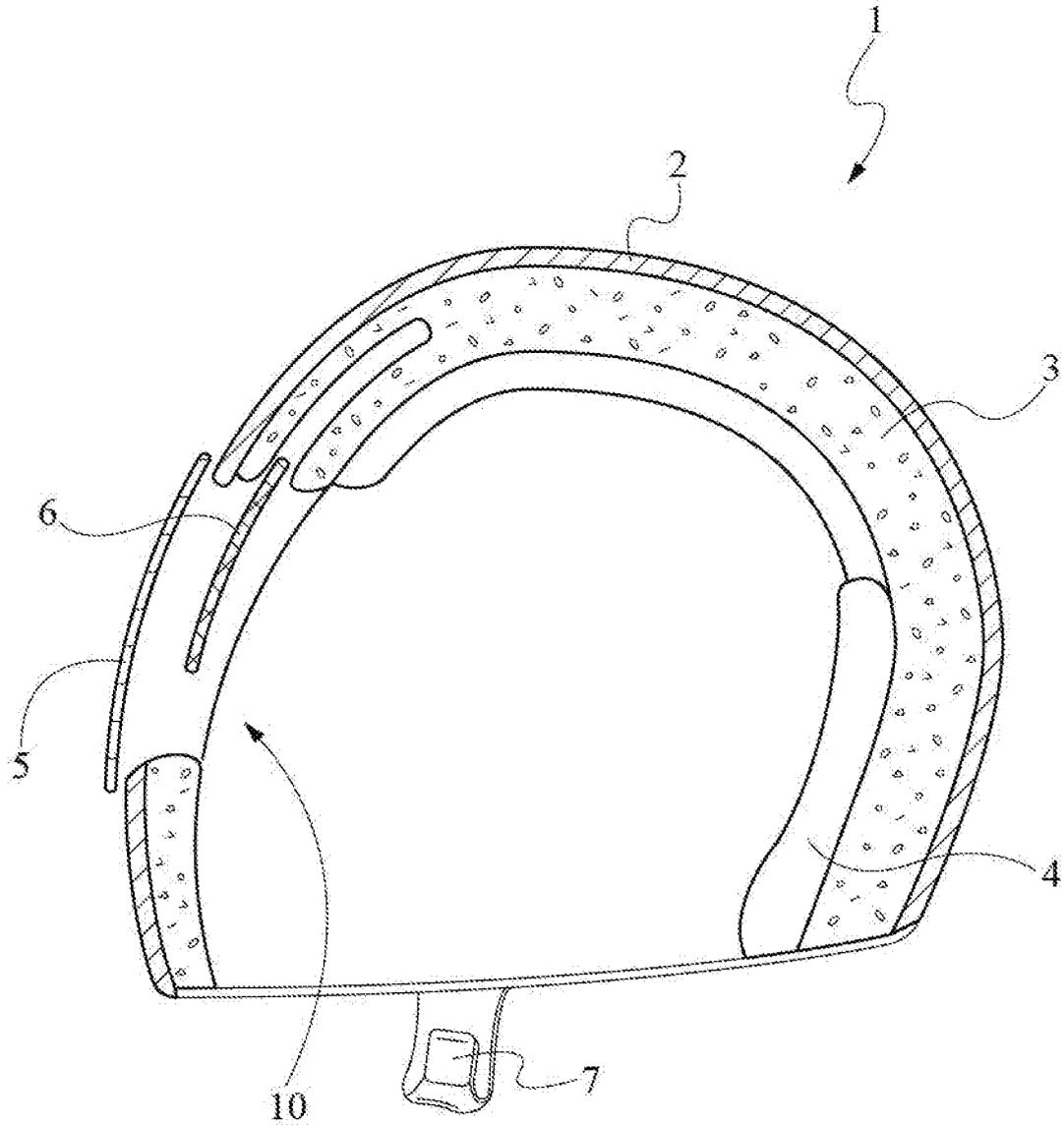


Fig. 1

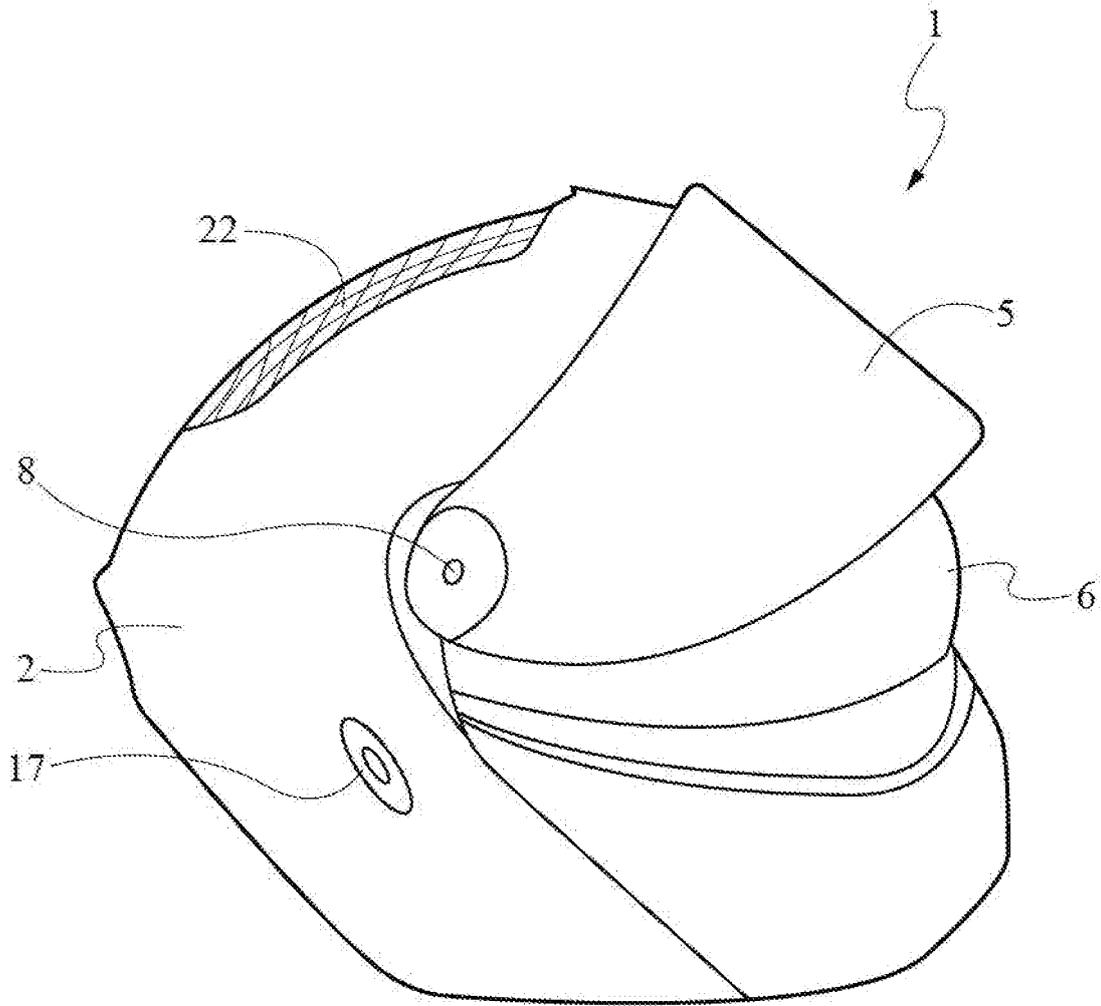


Fig. 2

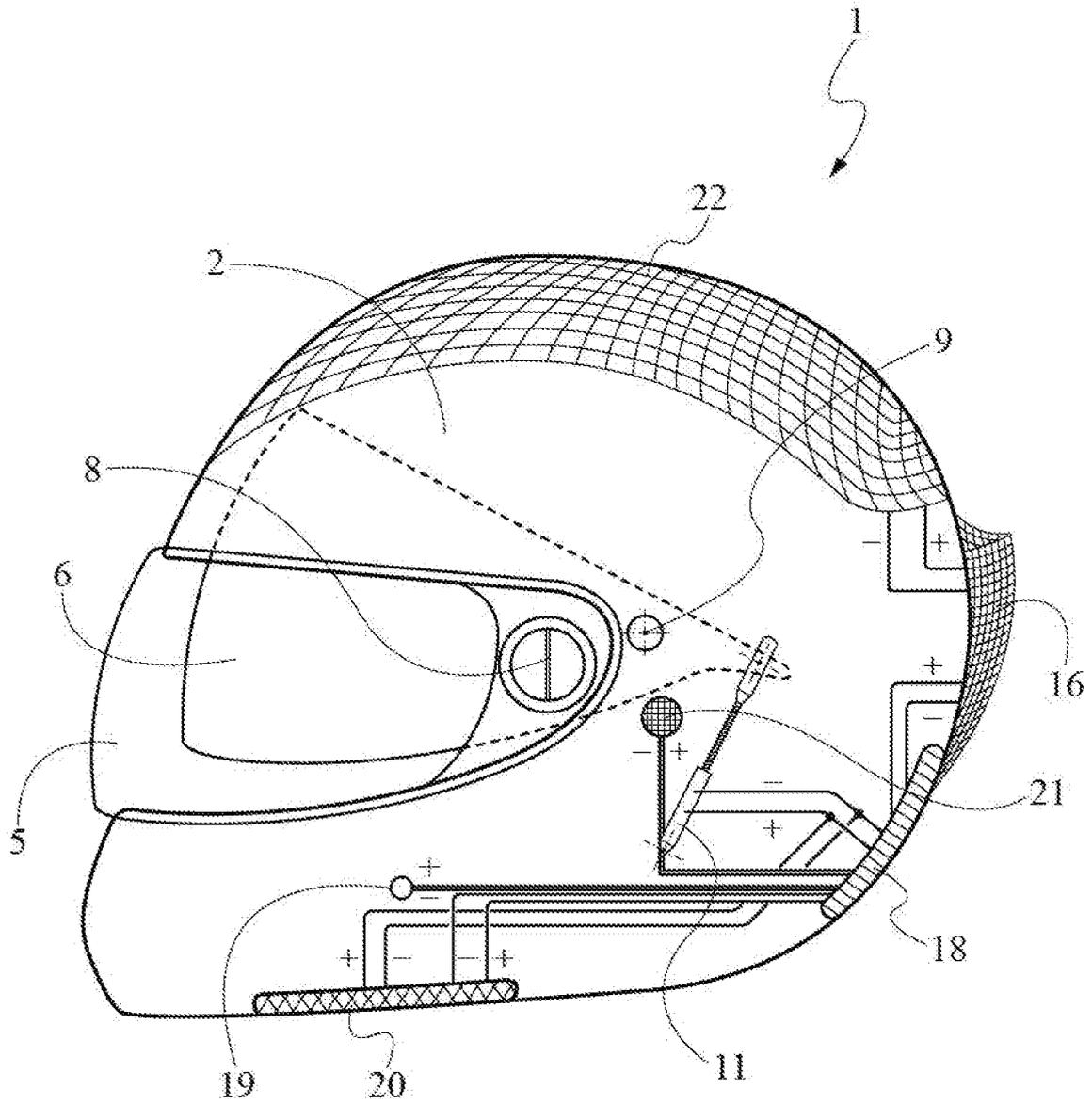


Fig. 3

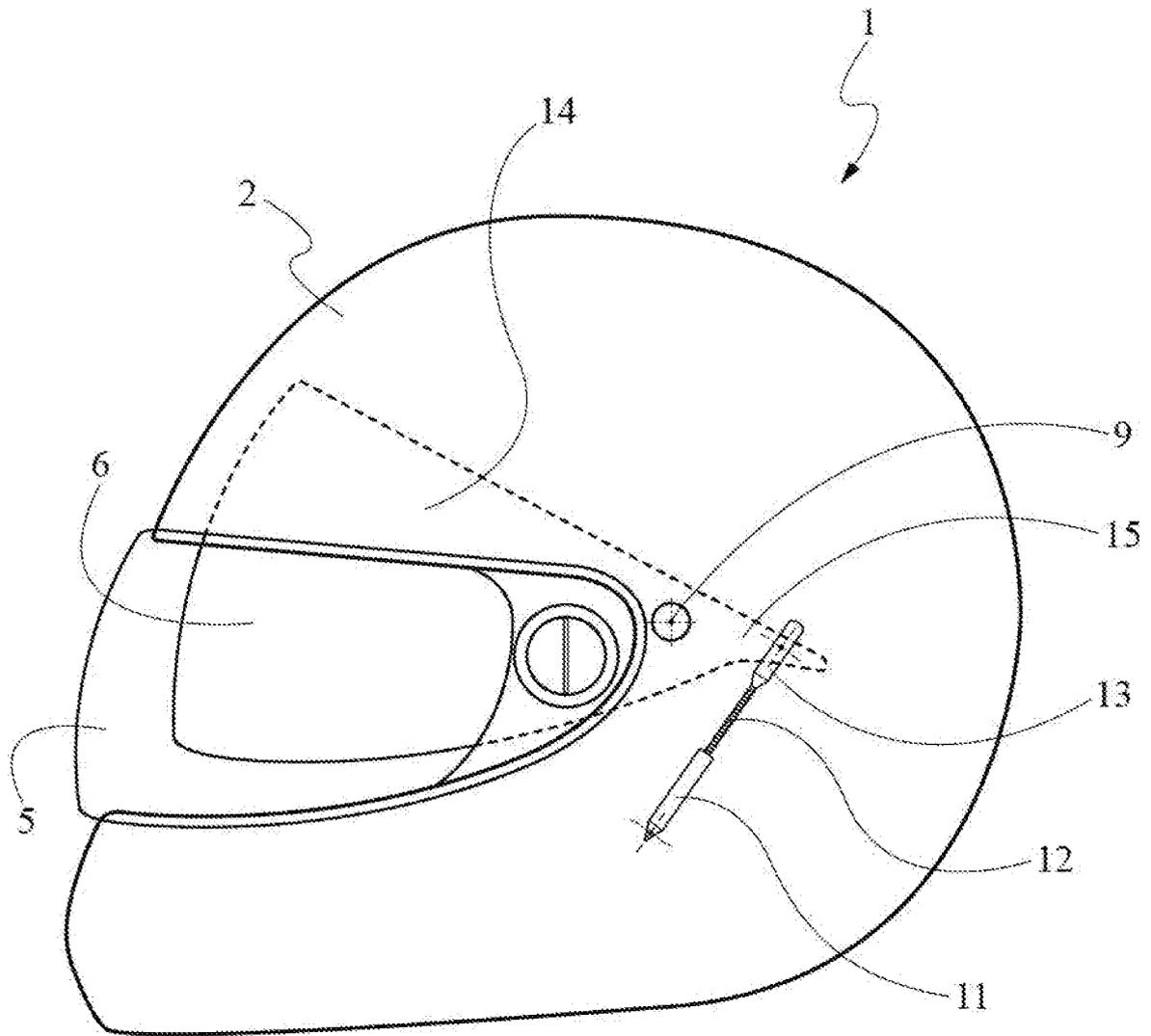


Fig. 4

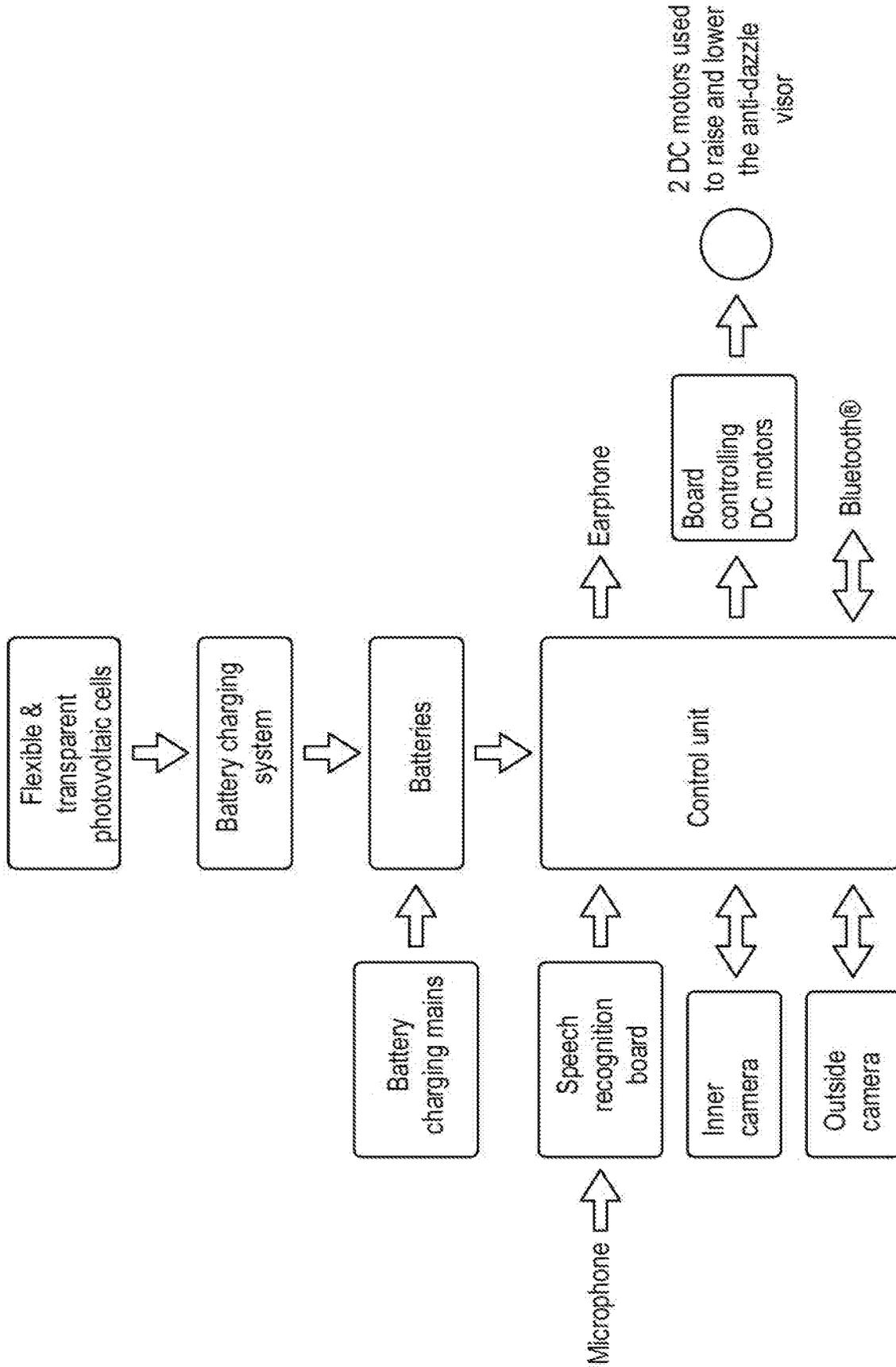


Fig. 5

**REFERENCES CITED IN THE DESCRIPTION**

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