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(54) **HELMET WITH NOISE-REDUCING SYSTEM**

(57) A helmet (1) with noise-reducing system includes a helmet body (11), a central control device (13), a fan unit (14), a microphone (15), an amplifier (16), and a Hall effect sensor (17). The helmet body (11) has an observation portion (112) located corresponding to a windscreen (12). The Hall effect sensor (17) can sense whether or not the windscreen (12) is close to a magnetic

element (121) and the observation portion (112) is secured to generate a signal. Then the sensed signal is sent to the central control device to determine and adjust the rotation speed of the fan unit (14), the volume of the microphone (15), the broadcasting volume of the amplifier (16) to provide the noise-reducing effect.

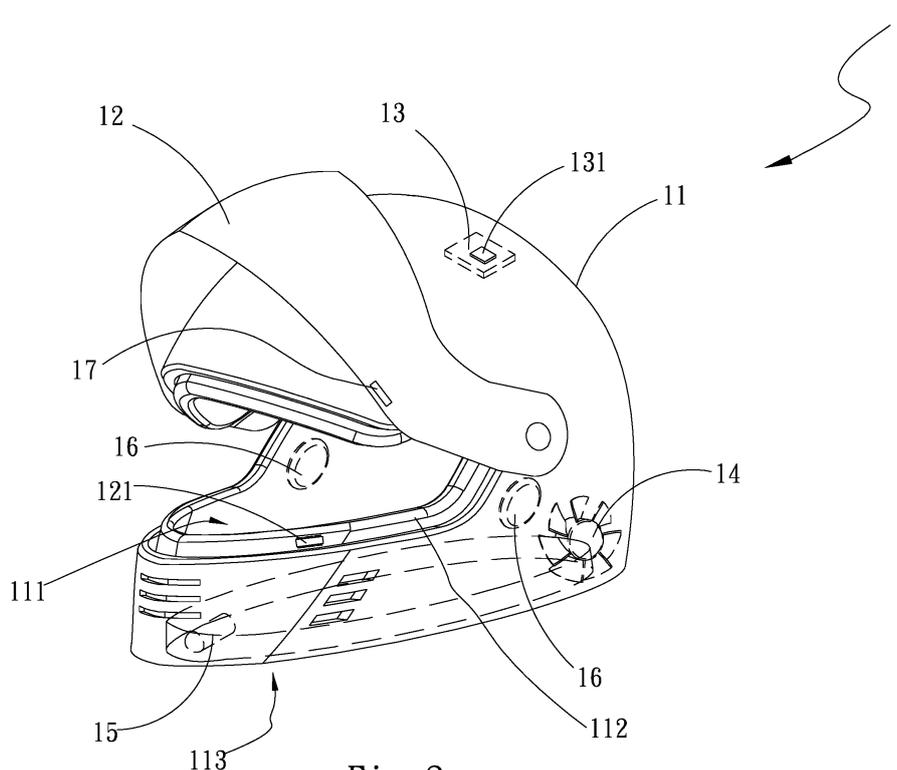


Fig. 2

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Description

[0001] This application claims the priority benefit of Taiwan patent application number 104218112 filed on November 11, 2015.

FIELD OF THE INVENTION

[0002] The present invention relates to a helmet with noise-reducing system, and more specifically, to a helmet with noise-reducing system that can automatically adjust the rotation speed of a fan unit, the volume of a microphone, the broadcasting volume of an amplifier through a Hall effect sensor sensing whether or not a windscreen being close to a magnetic element, so as to achieve the noise-reducing effect.

BACKGROUND OF THE INVENTION

[0003] In the event of traffic accidents, motorcycle drivers' injuries and deaths due to head injuries and therefore, it is a regulation law in most countries around the world that every motorcyclist must wear a helmet when riding a motorcycle to lower the harmful level, and further reduce the death rate to save the lives and safety of motorcyclists. There are various helmets available on the market, but the most protective type helmet is a full-face type helmet since it can cover the entire head of a user to offer a full coverage safety helmet. However, it is uncomfortable to wear the full-face helmet during a hot day, since the inside space of the helmet is kept in an airtight status. At this time, the full-face helmet is like a baking oven that keeps hot air on the inside. Moreover, it is easy to cause neck pain after long hours wearing. Some full-face helmets are equipped with a cooling fan to cool the hot air thereof. Still, this kind of cooling fan only can be turn on or off by the user but not adjustable. Therefore, it is very likely at the same time the user can be interfered by the loud noisy rotation speed of the cooling fan to miss warning alarms generated by other vehicles, and even in the worse condition, to cause traffic accidents.

[0004] Furthermore, in current traffic law explicitly prohibit talking, text-messaging or playing video games on hand-held mobile devices, such as smart phones, or tablet PC, while driving. Accordingly, many drivers choose to wear earphones, or bluetooth earphones as hand-free speakers. However, it is very inconvenient that the driver wears an earphone first, and then wears the full-face helmet since the earphone may squeeze to the user's ear to have the noise deaf and cause dangerous situations. Though many helmets integrated the hand-free speakers thereinto, the user still cannot hear external warning alarms by other vehicles when the observation portion is secured. It is therefore tried by the inventor to develop an improved helmet with noise-reducing system to overcome the above problems.

SUMMARY OF THE INVENTION

[0005] To solve the above problems, a primary object of the present invention is to provide a helmet with noise-reducing system that

[0006] To achieve the above and other objects, the helmet with noise-reducing system includes a helmet body, a central control device, a fan unit, a microphone, an amplifier, and a Hall effect sensor.

[0007] The helmet body has a receiving space, an observation portion, a wearing portion, and a windscreen. The observation portion is communicable with the receiving space and the wearing portion. The windscreen is located corresponding to the observation portion when the wind screen is downwardly moved to secure the observation portion. A magnetic element is disposed on a bottom of the observation portion. The central control device has a processing chip and a plurality of circuit units located in the receiving space. The microphone is electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space. The amplifier is electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space. The fan unit 14 is electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space. The Hall effect sensor is located corresponding to the magnetic element when the observation portion is secured, and used for sensing whether or not the magnetic element is close therto to generate a signal. Then the sensed signal is sent to the central control device to determine and adjust the microphone, the amplifier, and the fan unit, so as to achieve the noise-reducing effect.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The structure and the technical means adopted by the present invention to achieve the above and other objects can be best understood by referring to the following detailed description of the preferred embodiments and the accompanying drawings, wherein

Fig. 1 is a block diagram of a helmet with noise-reducing system according to a first preferred embodiment of the present invention;

Fig. 2 is a perspective view of the helmet with noise-reducing system according to the first preferred embodiment of the present invention; and

Fig. 3 is a block diagram of the helmet with noise-reducing system according to a second preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0009] The present invention will now be described with some preferred embodiments thereof and by referring to the accompanying drawings. For the purpose of easy to understand, elements that are the same in the preferred embodiments are denoted by the same reference numerals.

[0010] Please refer to Fig. 1, which is block diagram of a helmet with noise-reducing system 1 according to a first preferred embodiment of the present invention, and Fig. 2, which is a perspective view of the helmet with noise-reducing system according to the first preferred embodiment of the present invention. As shown, the helmet with noise-reducing system 1 includes a helmet body 11, a central control device 13, a fan unit 14, a microphone 15, an amplifier 16, and a Hall effect sensor 17. For the purpose of conciseness, the present invention is also briefly referred to as the helmet and generally denoted by reference numeral 1.

[0011] The helmet body 11 has a receiving space 111, an observation portion 112, a wearing portion 113, and a windscreen 12. The observation portion 112 is communicable with the receiving space 111 and the wearing portion 113. The windscreen 12 is located corresponding to the observation portion 112 when the wind screen 12 is downwardly moved to secure the observation portion 112. A magnetic element 121 is disposed on a bottom of the observation portion 112. A user's head (not shown) is received in the receiving space 111 of the helmet body 11 through the wearing portion 113, and the user's eyes corresponding to the observation portion 112.

[0012] The central control device 13 has a processing chip 131 and a plurality of circuit units 132 located in the receiving space 111.

[0013] The microphone 15 is electrically connected to the processing chip 131 of the central control device 13 via the circuit units 132 and located in the receiving space 111. The microphone 15 is used for receiving an external sound signal 151 to generate an external noise signal 152, which is then sent to the processing chip 131 of the central control device 13 to determine whether or not the external noise signal 152 is too noisy. Then the central control device 13 can increase the reception sensitivity of the microphone 15 when the external noise signal 152 is determined too noisy.

[0014] The amplifier 16 is electrically connected to the processing chip 131 of the central control device 13 via the circuit units 132 and located in the receiving space 111. The amplifier 16 is an earphone or a horn and used for broadcasting a sound signal 161 or a reduced external sound signal 162 outputted by the central control device 13.

[0015] The fan unit 14 is electrically connected to the processing chip 131 of the central control device 13 via the circuit units 132 and located in the receiving space 111. The fan unit 14 is a cooling fan and has a rotation

speed adjusted by the central control unit 13.

[0016] The Hall effect sensor 17 is located corresponding to the magnetic element 121 when the observation portion 112 is secured, and used for sensing whether or not the magnetic element 121 is close thereto to generate a signal. Then the sensed signal is sent to the central control device 13 to determine and adjust the microphone 15, the amplifier 16, and the fan unit 14.

[0017] The Hall effect sensor 17 can sense whether or not the windscreen 12 is close to the magnetic element 121 and the observation portion 112 is secured to generate a signal. Then the sensed signal is sent to the processing chip 131 of the central control device 13 to determine and adjust the rotation speed of the fan unit 14, the volume of the microphone 15, the broadcasting volume of the amplifier 16 to provide the noise-reducing effect.

[0018] When wearing the helmet body 11, the Hall effect sensor 17 senses whether or not the windscreen 12 is close to the magnetic element 121 and the observation portion 112 is secured to generate a signal. When the wind screen 12 is away from the magnetic element 121 and the observation portion is open sensed by the Hall effect sensor 17, the microphone 15 receives the external sound signal 151 to generate the external noise signal 152, which is then sent to the processing chip 131 of the central control device 13 to determine whether or not the external noise signal 152 is too noisy. Then the central control device 13 can increase the reception sensitivity of the microphone 15 and the volume of the amplifier 16 when the external noise signal 16 is determined too loud. Further, the processing chip 131 of the central control device 13 can output the reduced external sound signal 162 to the amplifier 16 to broadcast to reduce the level of the noisy, so as to achieve the noise-reducing effect.

[0019] Also, the processing chip 131 of the central control device 13 can adjust and lower the rotation speed of the fan unit 14 and increase the air circulation in the helmet body 11 via the observation portion 112 when the Hall effect sensor 17 is away from the magnetic element 121 and the observation portion 112 is open.

[0020] On the contrary, the processing chip 131 of the central control device 13 can adjust and lower the reception sensitivity of the microphone 15, the broadcasting volume of the amplifier 16 to prevent the driver from missing warning alarms from other vehicles when the Hall effect sensor 17 is close to the magnetic element 121 and the observation portion 112 is secured.

[0021] Furthermore, the processing chip 131 of the central control device 13 increases the rotation speed of the fan unit 14 to move the hot air from the receiving space 111 of the helmet 11 into the surrounding air.

[0022] Please refer to Fig. 3, which is block diagram of the helmet 1 according to a second preferred embodiment of the present invention. The second embodiment of the heat dissipation element 1 is generally structurally similar to the first embodiment except that, in this second embodiment, an antenna device 2 is provided and elec-

trically connected to the central control device 13. The antenna device 2 can be communicated with an external mobile device 3 or a wireless communication device 3, such that the microphone 15 can receive the external sound and the amplifier 16 can broadcast the received sound. Then Hall effect sensor 17 senses whether or not the windscreen 12 is close to the magnetic element 121 and the observation portion 112 is secured to generate a signal. Then the sensed signal is sent to the central control device 13 to determine to increase the reception sensitivity of the microphone 15, the broadcasting volume of the amplifier 16 to provide the noise-reducing effect.

[0023] The present invention has been described with some preferred embodiments thereof and it is understood that many changes and modifications in the described embodiments can be carried out without departing from the scope and the spirit of the invention that is intended to be limited only by the appended claims.

Claims

1. A helmet with noise-reducing system, comprising:

- a helmet body having an observation portion, a receiving space, a wearing portion, and a windscreen; the observation portion being communicable with the receiving space and the wearing portion; the windscreen being located corresponding to the observation portion when the wind screen being downwardly moved to secure the observation portion; and a magnetic element being disposed on a bottom of the observation portion;
- a central control device having a processing chip and a plurality of circuit units located in the receiving space;
- a microphone being electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space;
- an amplifier being electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space;
- a fan unit being electrically connected to the processing chip of the central control device via the circuit units and located in the receiving space;
- a Hall effect sensor being located corresponding to the magnetic element when the wind screen being downwardly moved to secure the observation portion; and
- the Hall effect sensor sensing whether or not the windscreen being close to the magnetic element and the observation portion being secured to generate a signal;

and then the sensed signal being sent to the central control device to determine and adjust the rotation speed of the fan unit, the volume of the microphone, the broadcasting volume of the amplifier to provide the noise-reducing effect.

2. The helmet with noise-reducing system as claimed in claim 1, wherein the microphone is used for receiving an external sound signal to generate an external noise signal, which is sent to the processing chip of the central control device to determine whether or not the external noise signal is too noisy; and then the central control device can increase the reception sensitivity of the microphone when the external is too noisy.

3. The helmet with noise-reducing system as claimed in claim 1, wherein the amplifier is an earphone or a horn and used for broadcasting a sound signal or a reduced external sound signal outputted by the central control device.

4. The helmet with noise-reducing system as claimed in claim 1, wherein the Hall effect sensor is located corresponding to the magnetic element when the observation portion is secured; the Hall effect sensor being used for sensing whether or not the magnetic element being close thereto to generate a signal, which being then sent to the central control device to determine and adjust the microphone, the amplifier, and the fan unit.

5. The helmet with noise-reducing system as claimed in claim 1, wherein the fan unit is a cooling fan.

6. The helmet with noise-reducing system as claimed in claim 1, further comprising an antenna device electrically connected to the central control device; and the antenna device can be communicated with an external mobile device or a wireless communication device.

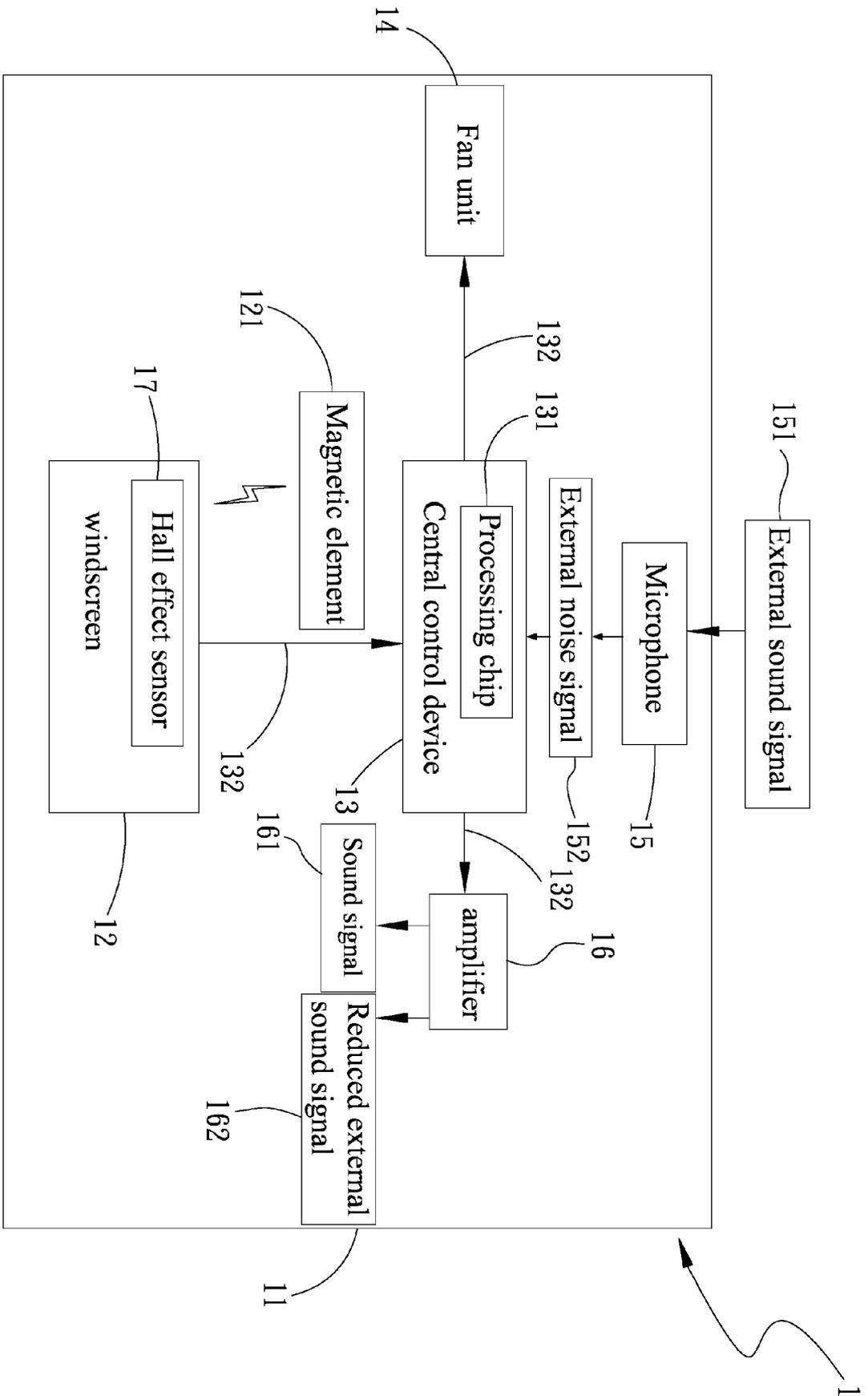


Fig. 1

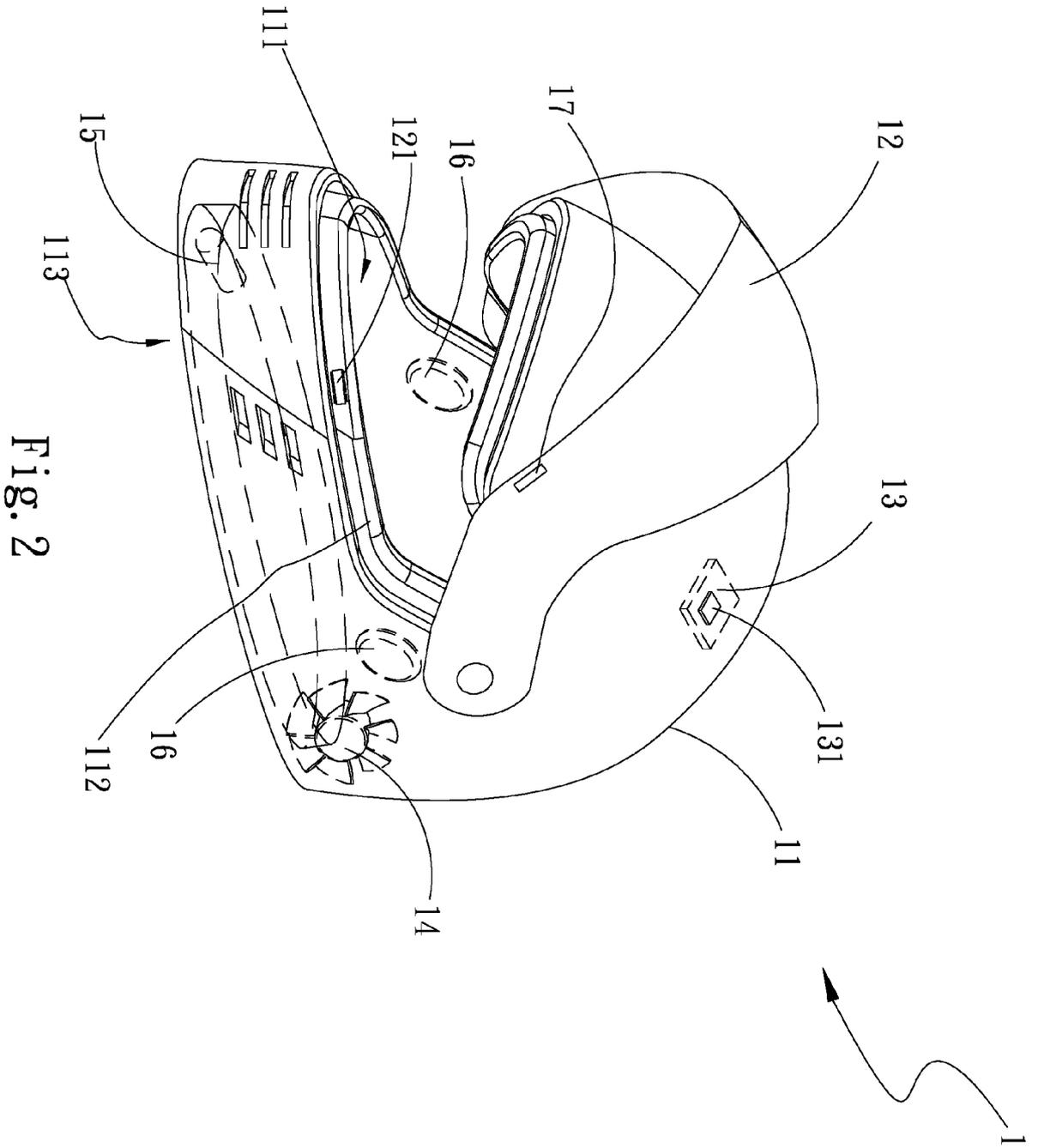


Fig. 2

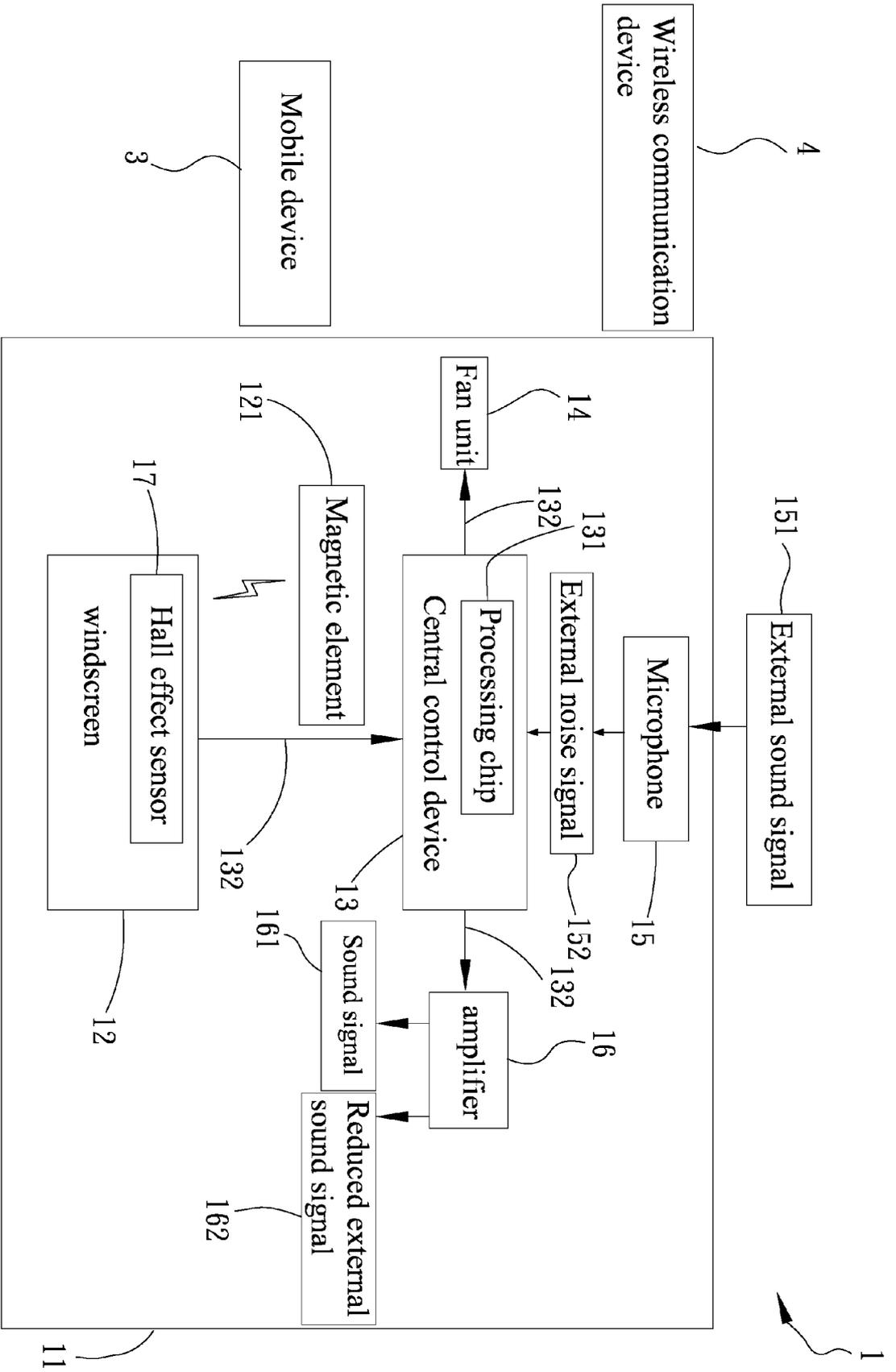


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) A42B
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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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ANNEX TO THE EUROPEAN SEARCH REPORT
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REFERENCES CITED IN THE DESCRIPTION

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