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Remarks:
Amended claims in accordance with Rule 137(2) EPC.

(54) **Bulb with Sensing Function and Camera**

(57) A bulb comprises a lower case (2), a circuit board, an upper case (1), a sleeve (13), a sensor cap (12), and a camera (3). The lower case (2) is provided with an electrical contact portion (22) at a bottom thereof The circuit board is mounted within the lower case (2) and provided with a plurality of light emitting elements (21) and an infrared sensor (23). The upper case (1) is mounted on an upper edge of the lower case (2) and defines an opening at a center thereof. The sleeve (13) is mounted to the lower case (2) and fitted with the opening of the upper case (1). The sensor cap (12) is mounted on top of the sleeve (13). The camera (3) is located adjacent to the infrared sensor (23). Thereby, when an infrared source enters the sensing scope of the infrared sensor (23), the camera (3) can be triggered to take images and the light emitting elements (21) can be turned on to perform illumination.

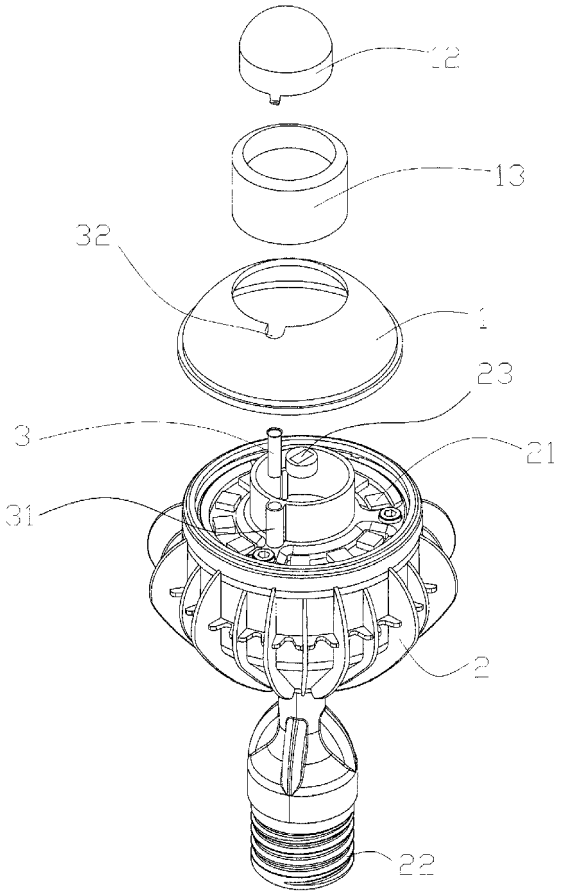

FIG.2

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Description

(a) Technical Field of the Invention

[0001] The present invention relates a bulb with a sensing function and a camera, and more particularly to a bulb that contains a camera mounted adjacent to an infrared sensor thereof to allow the bulb to conduct the function of surveillance more effectively.

(b) Description of the Prior Art

[0002] Conventionally, security monitoring equipments are designed in the manner that an infrared sensor is installed separately from an camera. The conventional equipments are conspicuous in appearance and have a larger volume. Thus, it is easy for intruders to avoid the surveillance of the conventional equipments.

[0003] Currently, security monitoring equipments are manufactured in smaller volume to render them less noticeable. However, the design of the security monitoring equipments also leaves a way to avoid the attention and the monitoring scope of the equipments, thereby causing a failure in recording activities. There is still a room for further improvement.

[0004] In view of the foregoing, the applicant has contrived an improved bulb with a sensing function and a camera after disclosing the U.S. patent 7,327,254 to soften the drawback of the conventional equipments and meet the needs of users.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to provide a bulb with a sensing function and a camera, which can perform surveillance more effectively.

[0006] The bulb comprises a lower case, a circuit board, an upper case, a sleeve, a sensor cap, and a camera. The lower case is provided with an electrical contact portion at a bottom thereof. The circuit board is mounted within the lower case and provided with a plurality of light emitting elements and an infrared sensor. The upper case is mounted on an upper edge of the lower case and defines an opening at a center thereof. The sleeve is mounted to the lower case and fitted with the opening of the upper case. The sensor cap is mounted on the sleeve for covering the infrared sensor. The camera is mounted between the upper case and the lower case and located adjacent to the infrared sensor. Thereby, when an infrared source enters the sensing scope of the infrared sensor, the camera can be triggered to take images and the light emitting elements can be turned on to perform illumination.

[0007] Other objects, advantages, and novel features of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

FIG 1 is a 3-dimensional view of the present invention.
FIG 2 is an exploded view of the present invention.
FIG 3 is a schematic view of the present invention.
FIG 4 is another schematic view of the present invention.
FIG 5 is a partially schematic view of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0009] Turning now to FIGS. 1-4, a preferred embodiment of a bulb according to the present invention generally comprises an upper case 1, a lower case 2, and a camera 3. Preferably, the camera 3 is a type of miniature camera, so that it is not easy to be noticed by intruders.

[0010] As shown, the lower case 2 is provided with an electrical contact portion 22 at a bottom thereof to be threadedly connected to a lamp socket, which can afford the bulb AC electrical power. A ball fitting 24 may be provided between the electrical contact portion 22 and the lower case 2, so that the bulb can be orientated at a desired direction through adjustment of the ball fitting 24. A circuit board is mounted within the lower case 2. The upper case 1 is threadedly connected to an upper edge of the lower case 2 and defines an opening at a center thereof. The sleeve 13 is mounted to the lower case 2 and fitted with the opening of the upper case 1. Particularly, the sleeve 13 can be mounted to the lower case 2 around a central tube of the lower case 2 and fitted with the opening of the upper case 1 at a top thereof The circuit board is provided with a plurality of light emitting elements 21 and an infrared sensor 23, wherein the light emitting elements 21 are arranged along a periphery of the circuit board, and the infrared sensor 32 extends out of the central tube of the lower case 2. The lower case 2 defines a slot 31 adjacent to the infrared sensor 23. The upper case 1 defines a hole 32 corresponding to the slot 31 of the lower case 2, whereby the camera 23 can be inserted into the slot 31 of the lower case 2 and fitted with the hole 32 of the upper case 1, so that the camera 3 is located adjacent to the infrared sensor 32. The camera 3 is electrically connected with the circuit board within the lower case 2 and can take images through the hole 32 of the upper case 1. Although the camera 3, the light emitting elements 21, and the infrared sensor 23 are mounted on the same circuit board, they can be each mounted on an individual circuit board to conduct its respective functions. Finally, the sensor cap 12 is mounted on top of the sleeve 13 through a latch means for covering the infrared sensor 23, so that the sensor cap 12 can prevent the intrusion of dusts and insects while allowing the infrared radiation to penetrate.

[0011] In use, the bulb of the present invention can be installed at a site, such as a door, a passageway, eaves, a garage, and so on. The bulb of present invention can be threaded into a bulb socket for connecting with an alternating current source, which can be converted into suitable sources for the electronic components of the bulb. When an infrared source (such as a human body) enters the sensing scope of the infrared sensor 23, the camera 3 can be triggered to take images and the light emitting elements 21 can be turned on to perform illumination. When the infrared sensor 23 does not detect an infrared source, the camera 3 will stay at a standby state. When the infrared sensor 23 detects an infrared source again, the camera 3 may be triggered again to take images and the light emitting elements 21 may be turned on again to perform illuminate. Furthermore, the camera 3 can be connected to a computer to allow a remote control and monitoring of the site where the bulb is installed, so as to perform surveillance more effectively in addition to the occult feature of the bulb.

[0012] Although the present invention has been described with a certain degree of particularity, it is understood that the present disclosure is made by way of example only and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention hereinafter claimed.

Claims

1. An improved bulb of the type including a lower case (2) provided with an electrical contact portion (22) at a bottom thereof; a circuit board mounted within said lower case (2), said circuit board being provided with a plurality of light emitting elements (21) and an infrared sensor (23); an upper case (1) mounted on an upper edge of said lower case (2), said upper case (1) defining an opening at a center thereof; a sleeve (13) mounted to said lower case (2) and fitted with said opening of said upper case (1); and a sensor cap (12) mounted on top of said sleeve (13) for covering said infrared sensor (23);
   the bulb **characterized in that**:

   a camera (3) is mounted between said upper case (1) and said lower case (2), said camera (3) is located adjacent to said infrared sensor (23), so that when an infrared source enters the sensing scope of said infrared sensor (23), said camera (3) can be triggered to take images and said light emitting elements (21) can be turned on to perform illumination.

2. An improved bulb of the type as claimed in claim 1, wherein said lower case (2) defines a slot (31) adjacent to said infrared sensor (23), said upper case (1) defines a hole (32) corresponding to said slot (31) of said lower case (2), whereby said camera (3) can be inserted into said slot (31) of said lower case (2) and fitted with said hole (32) of said upper case (1).

3. An improved bulb of the type as claimed in claim 1, wherein said infrared sensor (23), said camera (3), and said light emitting elements (21) can be each mounted on an individual circuit board.

Amended claims in accordance with Rule 137(2) EPC.

1. An improved bulb of the type including a lower case (2) provided with an electrical contact portion (22) at a bottom thereof; a circuit board mounted within said lower case (2), said circuit board being provided with a plurality of light emitting elements (21) and an infrared sensor (23); an upper case (1) mounted on an upper edge of said lower case (2), said upper case (1) defining an opening at a center thereof; a sleeve (13) mounted to said lower case (2) and fitted with said opening of said upper case (1); and a sensor cap (12) mounted on top of said sleeve (13) for covering said infrared sensor (23);
the bulb **characterized in that**:

a camera (3) is mounted between said upper case (1) and said lower case (2), said camera (3) is located adjacent to said infrared sensor (23), so that when an infrared source enters the sensing scope of said infrared sensor (23), said camera (3) can be triggered to take images and said light emitting elements (21) can be turned on to perform illumination.

2. An improved bulb of the type as claimed in claim 1, wherein said lower case (2) defines a slot (31) adjacent to said infrared sensor (23), said upper case (1) defines a hole (32) corresponding to said slot (31) of said lower case (2), whereby said camera (3) can be inserted into said slot (31) of said lower case (2) and fitted with said hole (32) of said upper case (1).

3. An improved bulb of the type as claimed in claim 1, wherein said infrared sensor (23), said camera (3), and said light emitting elements (21) can be each mounted on an individual circuit board.

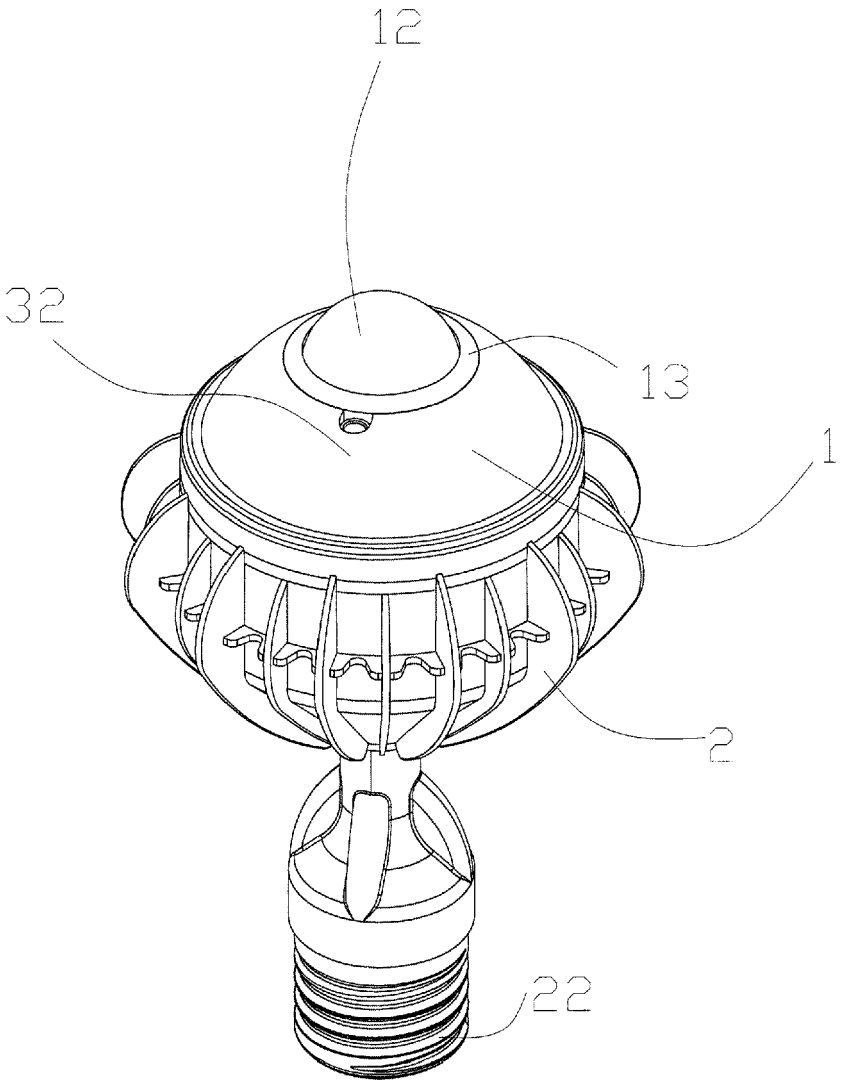

FIG.1

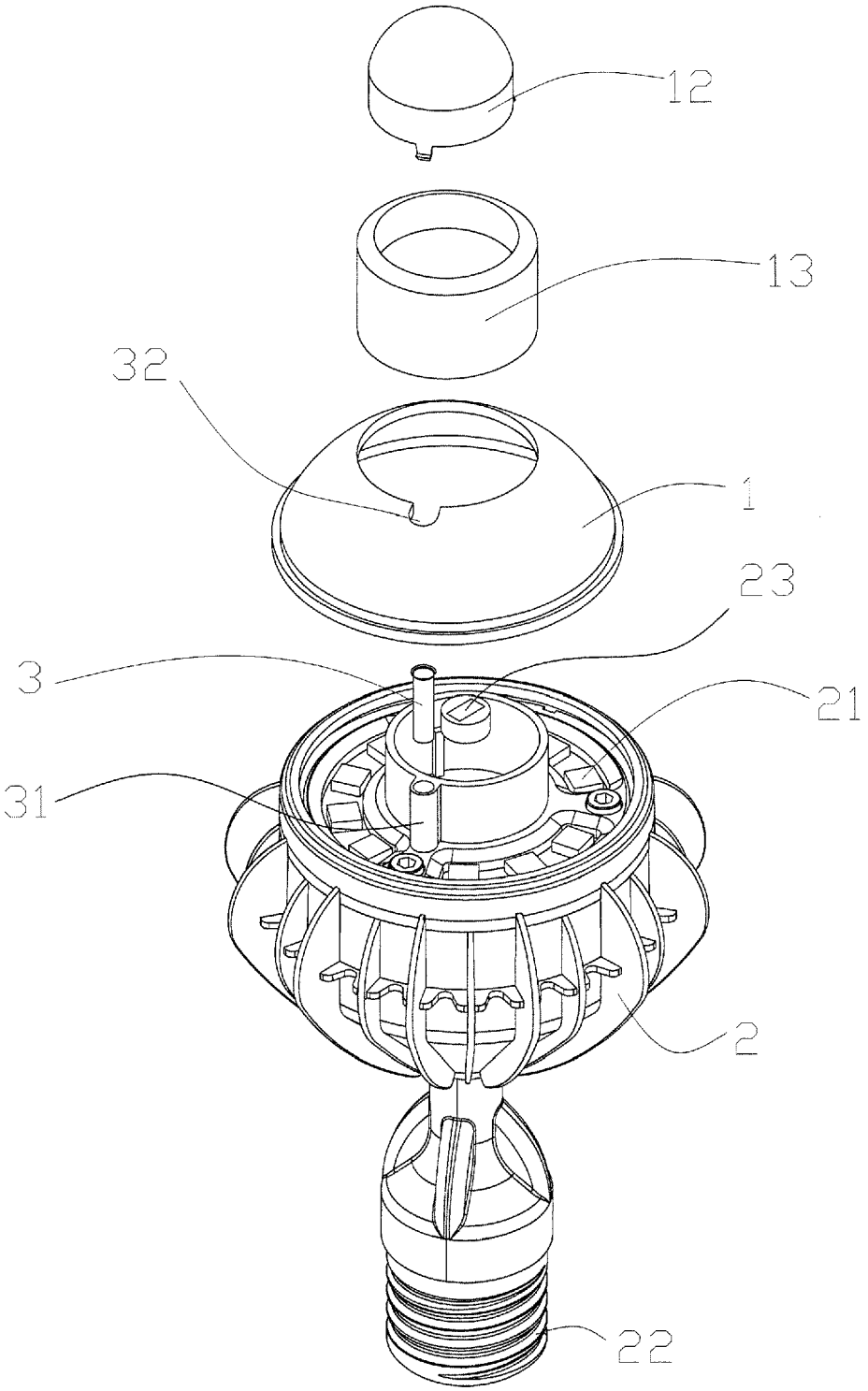

FIG.2

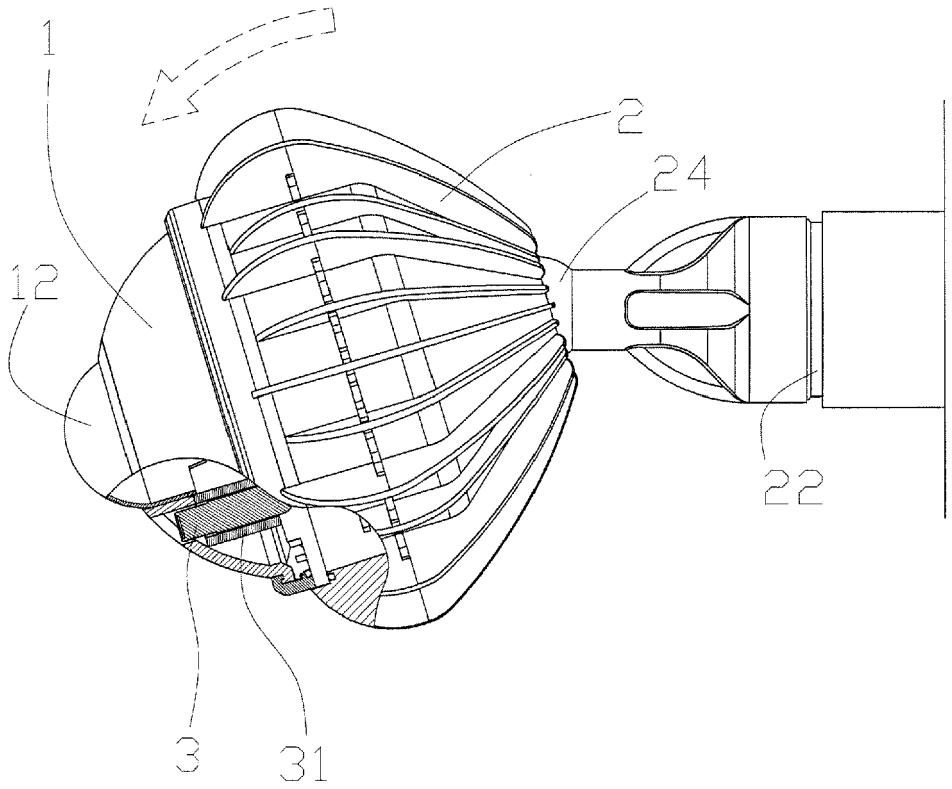

FIG.3

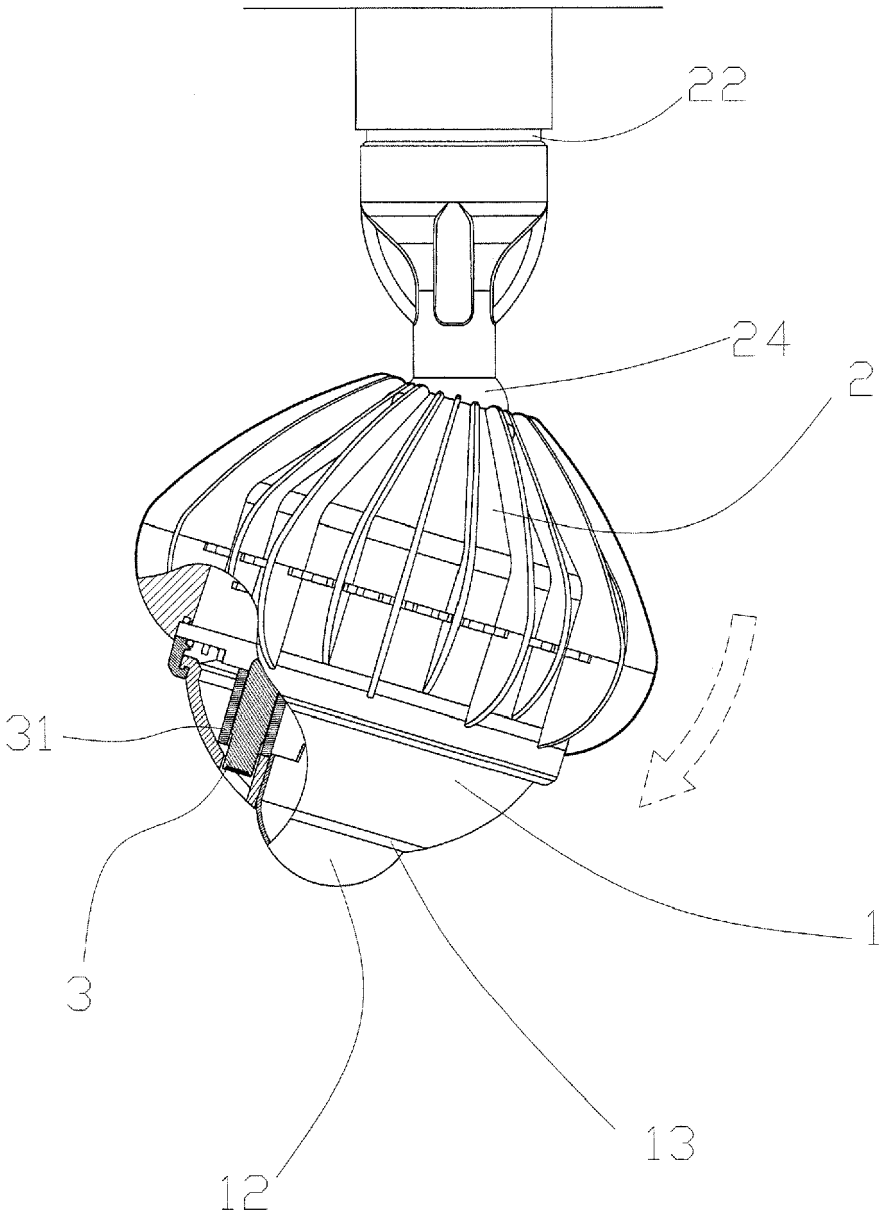

FIG.4

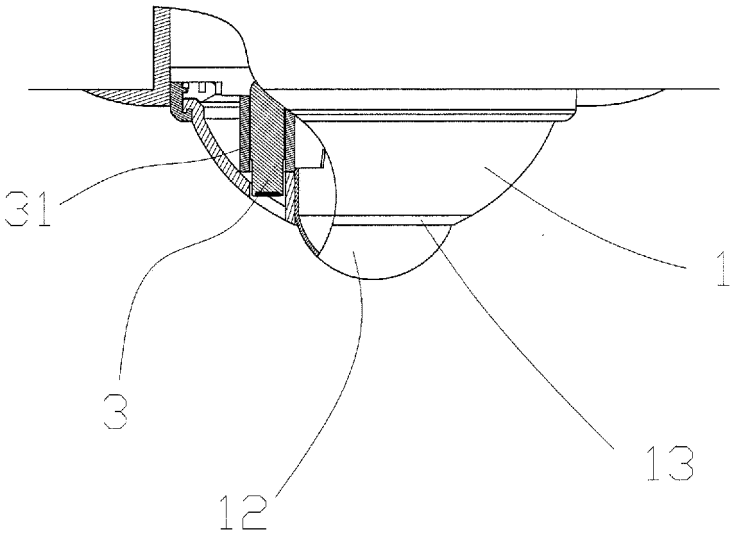

FIG.5

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EUROPEAN SEARCH REPORT

Application Number
EP 11 18 1337

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 2010/277082 A1 (REED WILLIAM G [US] ET AL) 4 November 2010 (2010-11-04) * paragraph [0030] - paragraph [0056] * * figures 3,4 *	1-3	INV. F21V23/04 F21V29/00 F21K99/00
X	EP 1 881 261 A1 (CHAN SZE KEUN [CN]) 23 January 2008 (2008-01-23) * paragraph [0019] - paragraph [0029] * * figure 1 *	1-3	ADD. F21Y101/02
X	US 2010/148672 A1 (HOPPER MICHAEL BLAIR [US]) 17 June 2010 (2010-06-17) * paragraph [0019] - paragraph [0046] * * figure 1 *	1-3	

TECHNICAL FIELDS SEARCHED (IPC)

F21V
F21K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 January 2012	Blokland, Russell

CATEGORY OF CITED DOCUMENTS

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26-01-2012

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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