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(54) ROAD LIGHTING DEVICE

STRASSENLEUCHTE

DISPOSITIF D'ECLAIRAGE DES ROUTES

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(73) Proprietor: **GEWISS S.p.A.**
I-24069 Cenate Sotto (Bergamo) (IT)

(72) Inventor: **BOSATELLI, Domenico**
I-24069 Cenate Sotto (IT)

(74) Representative: **Forattini, Amelia**
c/o Internazionale Brevetti
Ingg. ZINI, MARANESI & C. S.r.l.
Piazza Castello 1
20121 Milano (IT)

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Description

[0001] The present invention relates to a road lighting device.

[0002] The problem of lighting roads, effectively and at the same time cheaply, and particularly of lighting roads subject to intense and fast-moving traffic, is known.

[0003] The need has long been felt to provide not only adequate lighting but also an adequate system for signalling traffic conditions and any other situation which is critical for users.

[0004] New road lighting devices are continuously proposed and so are various road signaling and information systems. GB-A-1316518 discloses an audio-visual alarm device housed within a lamp post. However, the need to light and cover a large number of very long stretches of highways requires devices and systems which are cheap both from the point of view of installation and from the point of view of management and maintenance.

[0005] The aim of the present invention is to provide a road lighting device which is particularly suitable for lighting road areas which are particularly critical in terms of safety, such as roads, highways, highway turn-offs, parking spaces and in general wherever adequate lighting and a system for signalling any critical conditions are required.

[0006] Another object of the invention is to provide a device which combines multiple features in a modular manner, so that it can be easily adapted to different and specific uses.

[0007] Another object is to provide a device which is economically advantageous despite having superior features from the point of view of management and of its users.

[0008] This aim, these objects and others which will become apparent hereinafter are achieved by the characterizing part of claim 1.

[0009] Further characteristics and advantages will become apparent from the description of a preferred but not exclusive embodiment of the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Fig. 1 is a perspective view of the road lighting device according to the present invention;

Fig. 2 is a view, similar to Fig. 1 and in a smaller scale, of the road lighting device in the open position;

Fig. 3 is a rear elevation view of the road lighting device according to the present invention;

Fig. 4 is a perspective view of the road lighting device according to the present invention.

[0010] With reference to the above figures, the road lighting device according to the present invention, generally designated by the reference numeral 1, comprises a casing 3 which includes, in the illustrated case, two half-shells: a lower half-shell 5 and an upper half-shell 7.

[0011] The lower half-shell 5 accommodates a reflector 9 in which a lamp 11 is inserted; the lamp is protected by a screen or diffuser 13. The lower half-shell 5 accommodates the electrical part 15, which includes the electric power supply means of the lamp and an electronic part for controlling an auxiliary signalling means.

[0012] According to the invention, the auxiliary signalling means can include an emergency signalling means 17 and a status signalling means 19, suitable to indicate, for example visually, the operating status of the device according to the invention.

[0013] The electronic part, together with the status signalling means 19, is capable of performing at least two functions: visual indication of the operating status of the device and interfacing for communication with a control and management system.

[0014] The visual indication of the operating status of the device is, as mentioned, achieved by virtue of the status signalling means 19, which is constituted for example by luminous indicators in different colors which indicate, for example, the main operating conditions: power supply active, lamp malfunction, electronic system failure. By virtue of the status signalling means 19 it is possible to check the operating status of the device and immediately identify any faulty component.

[0015] The emergency signalling means 17 is adapted to call the attention of vehicle drivers to a critical situation. The emergency signalling means 17 includes, in the illustrated case, an intermittent light source which is provided with an optical system which attracts the attention of vehicle drivers without however interfering with the operation of the diffuser of the lamp for lighting the road, as shown schematically in Figure 3.

[0016] Activation and deactivation of the emergency signalling means 17 are controlled by the electronic part.

[0017] The road lighting device according to the invention is provided with an anchoring system, not shown in the figures, for various supports which are normally constituted by poles in the planned standard executions.

[0018] The electrical part 15 is modular and is executed so as to facilitate maintenance and allow to fully install or not install the various auxiliary signalling services.

[0019] The upper half-shell or cover 7 can be opened without tools. The casing 3 also has aerodynamic features which reduce wind resistance both in a longitudinal direction and in a transverse direction regardless of the type of support used.

[0020] The casing 3 is constructed so as to give the device high resistance to the effects of weather, especially with regard to the penetration of foreign objects inside the body, which would cause a decrease in luminous efficiency.

[0021] In practice it has been found that the invention achieves the intended aim and objects, a road lighting device having been provided which includes an auxiliary signalling system which is suitable to indicate a dangerous condition and/or a malfunction of the device.

[0022] It is evident that the device according to the invention offers the great advantage of combining multiple functions, assigned up to now to separate devices, for example conventional lampposts, danger indicators arranged in specific points and luminous information displays or panels. The device according to the invention offers auxiliary functions, such as the signalling of a danger or other critical situation, at a cost which is very close to the cost of a conventional lamppost. From the point of view of management, the device according to the invention allows maintenance workers to visually inspect the devices simply and straightforwardly, allowing not only to immediately identify which devices are defective but also to immediately identify the kind of malfunction.

[0023] The device according to the invention is susceptible of numerous modifications and variations, within the scope of the appended claims. All the details may be replaced with technically equivalent elements.

[0024] The materials used, as well as the dimensions, may of course be any according to the requirements and the state of the art.

Claims

1. A road lighting device comprising a casing (3) for containing a road lighting means (9, 11, 13), an electrical part (15) and an auxiliary signalling means (17), **characterized in that** said casing comprises a lower portion (5) and an upper portion (7), said auxiliary signalling means (17) being associated with said upper portion, said auxiliary signalling means (17) being adapted to attract the attention of vehicle drivers without interfering with the road lighting.
2. The device according to claim 1, **characterized in that** said auxiliary signalling means (17) comprises a visual signalling means.
3. The device according to claim 1 or 2, **characterized in that** said auxiliary signalling means (17) comprises a means (19) for signalling the operating status of said device.
4. The device according to one or more of the preceding claims, **characterized in that** said auxiliary signalling means (17) comprises an emergency signalling means adapted to indicate an emergency situation to vehicle drivers.
5. The device according to one or more of the preced-

ing claims, **characterized in that** said auxiliary signalling means (17) comprises a combination of an emergency signalling means, suitable to signal an emergency situation to vehicle drivers, and a means (19) for signalling the operating status of said device.

6. The device according to one or more of the preceding claims, **characterized in that** said operating status signalling means (19) comprises luminous indicators in different colors, indicating the main operating conditions of said device.
7. The device according to one or more of the preceding claims, **characterized in that** said emergency signalling means comprises an intermittent light source which is provided with an optical system which attracts the attention of vehicle drivers.
8. The device according to one or more of the preceding claims, **characterized in that** said electrical part (15) comprises a means for supplying electric power to the lighting means and an electronic part for controlling said auxiliary signalling means (17).
9. The device according to one or more of the preceding claims, **characterized in that** said casing comprises a lower half-shell (5) and an upper half-shell (7), said upper half-shell being openable in order to access the inside of said casing without the aid of tools.
10. The device according to one or more of the preceding claims, **characterized in that** said emergency signalling means is associated with said upper shell (7).

Patentansprüche

1. Straßenbeleuchtungsvorrichtung aufweisend ein Gehäuse (3) zur Aufnahme von Straßenbeleuchtungsmitteln (9, 11, 13), einen elektrischen Teil (15) und ein Hilfssignalisierungsmittel (17), **dadurch gekennzeichnet, daß** das Gehäuse einen unteren Bereich (5) und eine obere Bereich (7) aufweist, wobei das Hilfssignalisierungsmittel (17) mit dem oberen Bereich verbunden ist und dazu vorgesehen sind, die Aufmerksamkeit von Fahrzeugfahrern ohne Störung der Straßenbeleuchtung anzuziehen.
2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, daß** das Hilfssignalisierungsmittel (17) ein visuelles Signalisierungsmittel aufweist.
3. Vorrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, daß** das Hilfssignalisierungsmittel (17) ein Mittel (19) zur Signalisierung des Betriebs-

zustands der Vorrichtung aufweist.

4. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Hilfssignalisierungsmittel (17) ein Notfallsignalisierungsmittel aufweist, welches dazu vorgesehen ist, Fahrzeugfahrern eine Notfallsituation anzuzeigen.
 5. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Hilfssignalisierungsmittel (17) eine Kombination aus einem Notfallsignalisierungsmittel, welches dazu geeignet ist, Fahrzeugfahrern eine Notfallsituation zu signalisieren, und einem Mittel (19) zur Signalisierung des Betriebszustandes der Vorrichtung aufweist.
 6. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Mittel (19) zur Anzeige des Betriebszustandes leuchtende Anzeigemittel in unterschiedlichen Farben aufweist, welche die Hauptbetriebszustände der Vorrichtung anzeigen.
 7. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Notfallsignalisierungsmittel eine intermittierende Lichtquelle aufweist, welche mit einem optischen System versehen ist, welches die Aufmerksamkeit von Fahrzeugfahrern anzieht.
 8. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß der elektrische Teil (15) ein Mittel zur Lieferung von elektrischer Energie an das Beleuchtungsmittel und einen elektronischen Teil zur Steuerung des Hilfssignalisierungsmittels (17) aufweist.
 9. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Gehäuse eine untere Halbschale (5) und eine obere Halbschale (7) aufweist, wobei die obere Halbschale zu öffnen ist, um das Innere des Gehäuses ohne die Hilfe von Werkzeugen zugänglichen zu machen.
 10. Vorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, daß das Notfallsignalisierungsmittel mit der oberen Schale (7) verbunden ist.

Revendications

1. Dispositif d'éclairage de route comportant un boîtier (3) destiné à contenir des moyens d'éclairage de route (9, 11, 13), une partie électrique (15) et des

moyens de signalisation auxiliaires (17), caractérisé en ce que ledit boîtier comporte une partie inférieure (5) et une partie supérieure (7), lesdits moyens de signalisation auxiliaires (17) étant associés à ladite partie supérieure, lesdits moyens de signalisation auxiliaires (17) étant adaptés pour attirer l'attention de conducteurs de véhicule sans interférer avec l'éclairage de route.

- 10 2. Dispositif selon la revendication 1, **caractérisé en ce que** lesdits moyens de signalisation auxiliaires (17) comportent des moyens de signalisation visuelle.

15 3. Dispositif selon la revendication 1 ou 2, **caractérisé en ce que** lesdits moyens de signalisation auxiliaires (17) comportent des moyens (19) pour signaler l'état de fonctionnement dudit dispositif.

20 4. Dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdits moyens de signalisation auxiliaires (17) comportent des moyens de signalisation d'urgence adaptés pour indiquer une situation d'urgence à des conducteurs de véhicule.

25 5. Dispositif selon l'une quelconque ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits moyens de signalisation auxiliaires (17) comportent une combinaison de moyens de signalisation d'urgence, adaptés pour signaler une situation d'urgence à des conducteurs de véhicule, et des moyens (19) pour signaler l'état de fonctionnement dudit dispositif.

30 6. Dispositif selon l'une quelconque ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits moyens de signalisation d'état de fonctionnement (19) comportent des indicateurs lumineux de différentes couleurs, indiquant les conditions de fonctionnement principales dudit dispositif.

35 7. Dispositif selon l'une quelconque ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits moyens de signalisation d'urgence comportent une source de lumière intermittente qui est munie d'un système optique qui attire l'attention de conducteurs de véhicule.

40 8. Dispositif selon l'une quelconque ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite partie électrique (15) comporte des moyens d'alimentation électrique des moyens d'éclairage, et une partie électronique pour commander lesdits moyens de signalisation auxiliaires (17).

45 9. Dispositif selon l'une quelconque ou plusieurs des

revendications précédentes, **caractérisé en ce que** ledit boîtier comporte une demi-coque inférieure (5) et une demi-coque supérieure (7), ladite demi-coque supérieure pouvant être ouverte pour accéder à l'intérieur dudit boîtier sans utiliser d'outils. 5

10. Dispositif selon l'une quelconque ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits moyens de signalisation d'urgence sont associés à ladite coque supérieure (7). 10

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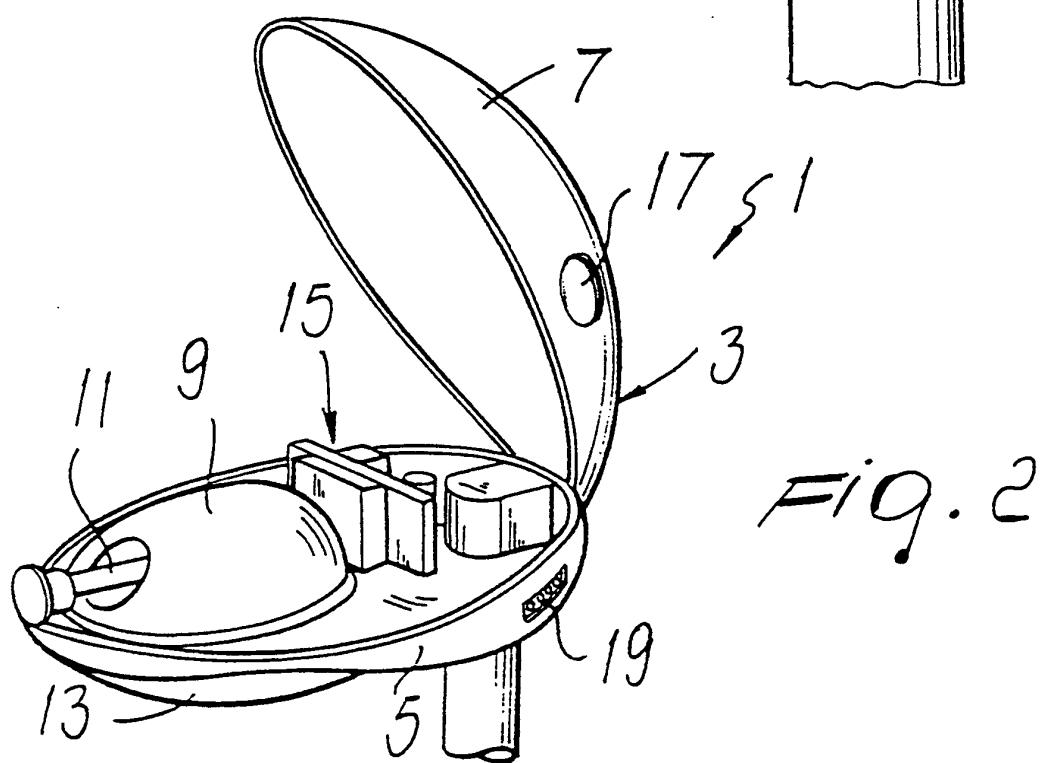
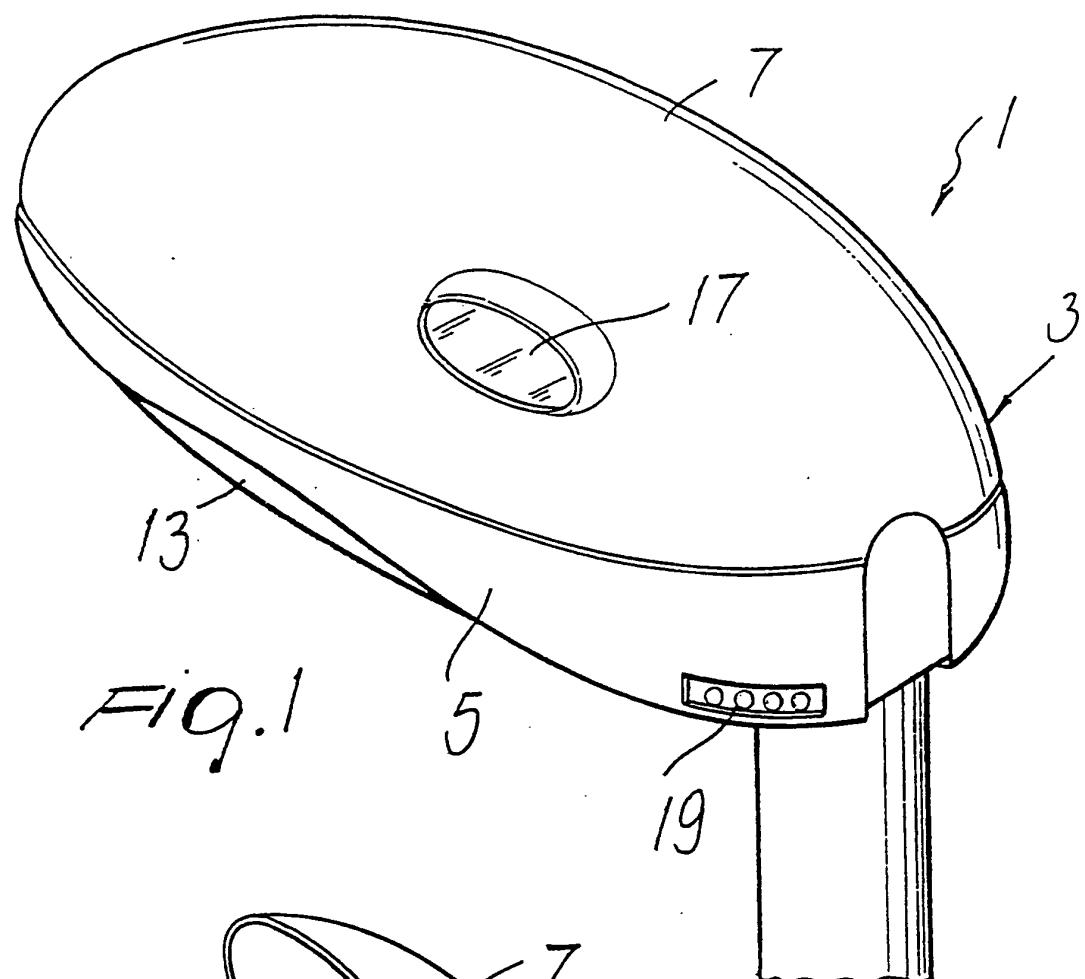
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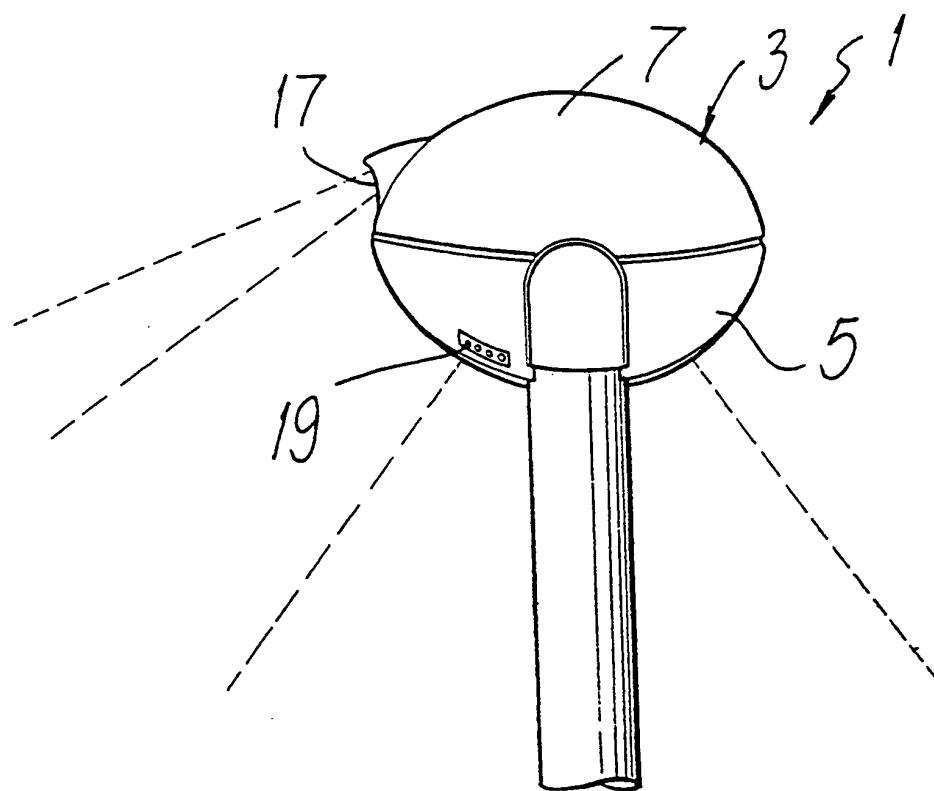


FIG. 3

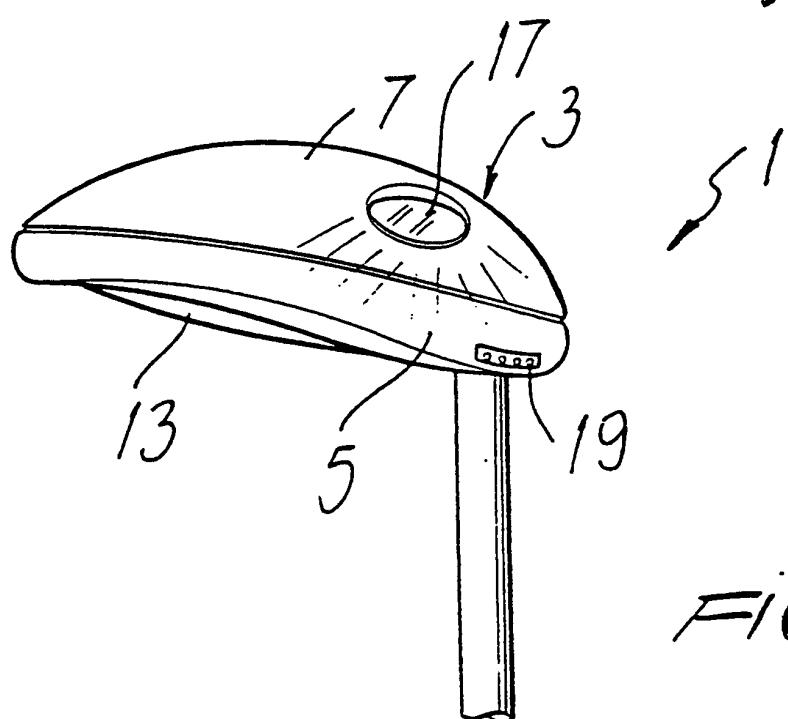


FIG. 4