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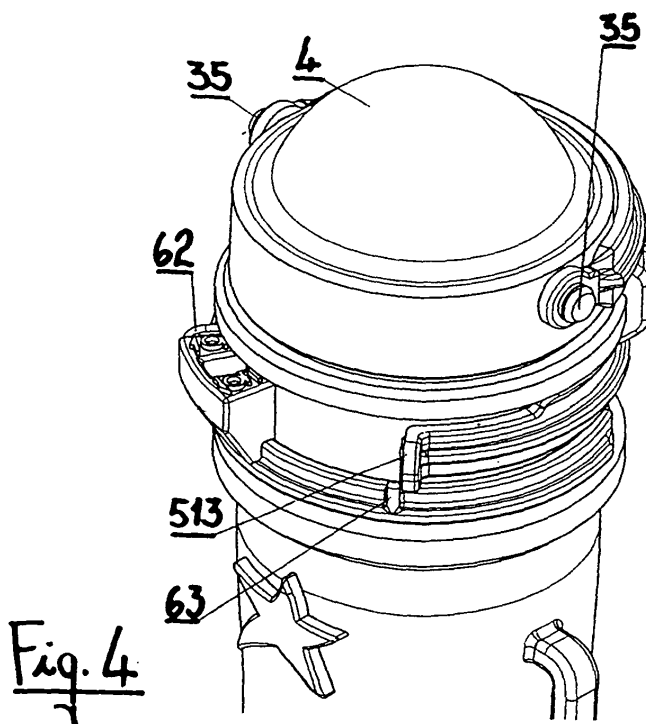
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(54) **Luminous signalling buoy fitted with light on/off device**

(57) Luminous signalling buoy comprising a hollow, floating body (2) open in its upper part, the opening of which is closed by a transparent cap or capsule (4) that surrounds a light source and that allows the light emitted by said source to be visible from the outside, an extractable supporting frame (3) which houses the light source in its upper portion, an electronic circuit of power for the light source and a housing (33) for said power supply

battery, said electronic circuit of power for the light source being provided with a switch equipped with a magnetic sensor which is able to activate or deactivate the source itself in reply to a magnetic solicitation. Externally to the body of the buoy it is provided with a light on/off device which magnetically transmits to the inside of the buoy said magnetic solicitation so that said turning on and turning off switch, provided in the inside of the buoy body, turns on or turns off said light source.



Description

[0001] The subject of this invention is a luminous signalling buoy fitted with a light on/off device, for instance of the type supplied as emergency equipment for buoys.

[0002] Traditionally, buoys of such type are made up of a floating body fitted with a transparent dome fixed hermetically to the body, inside of which is inserted a luminous body, for instance a common incandescent light bulb powered by a battery. The floating body is also normally equipped with a hook or ring for tying with a rope. The floating body is shaped in such way that the transparent capsule is above the water line of the buoy, so that the light emitted by said luminous body is always visible from a distance during rescue operations.

[0003] The transparent dome is screwed onto the body of the buoy and a sealing gasket is placed between the two parts that are screwed together.

[0004] This signalling buoy is activated (i.e. the light of the luminous body is switched on) once it is thrown into the water to signal the presence of people to be rescued and facilitate the rescue operations.

[0005] It is a well-known fact that there may be different problems in the case it is necessary to open the body of the buoy before its use in water, for instance by means of unscrewing of the transparent dome or by means of opening the hook to have access to the electronic part of the buoy itself and/or the battery. If, indeed, this operation of opening/switching on and successive closing again is performed in a hurry, it might happen that the closing is not carried out in the correct way, for which the body of the buoy inevitably loses its water-tightness. Furthermore, with the traditional system each time that the buoy is used, it is necessary to act mechanically in an invasive way on the body of the buoy itself to switch it on and, after a number of uses, the same might lose its features of sealing.

[0006] Therefore, this invention resolves the aforesaid inconveniences by means of the creation of a buoy fitted with a light on/off device positioned on its external body in such way as to magnetically transmit to the inside of the body the activating by means of a magnetic sensor, which, in turn, makes or breaks an on/off switch connected to the luminous source.

[0007] The subject of this invention is a luminous signalling buoy having the characteristics of the attached claim 1. Further accessory characteristics of said buoy are indicated in the dependent claims.

[0008] One form of exemplifying, but not limiting creation of this invention will be described making reference to the attached figures in which:

- fig. 1 illustrates a lateral view of the buoy according to this invention;
- fig. 2 illustrates a blown-up perspective view of the buoy according to this invention;
- fig. 3 illustrates, in perspective view, the light on/off device of the buoy according to this invention;

- fig. 4 illustrates, in perspective view, the upper part of the buoy.

[0009] With reference to the figures mentioned, the luminous signalling buoy includes a hollow, floating body 2 open in its upper part, having an upper portion or neck 21 of substantially cylindrical shape, and a lower body 22, of a substantially cylindrical shape.

[0010] This shape of the buoy makes it float in such way that at least the upper cylindrical portion emerges from the water.

[0011] The lower portion of the hollow body has advantageously a ring 231 or equivalent means of tying by rope.

[0012] The upper opening of the hollow body is closed by a transparent cap or capsule 4 which surrounds the light source and allows the light emitted by the source to be visible from the outside of the buoy.

[0013] This cap 4 is advantageously bonded directly to the supporting frame and its lower edge 41 is associated to the mouth of the body of the buoy, by means of a snap-fitting mechanism.

[0014] In the upper opening or mouth of the hollow body a supporting frame 3 is opportunely inserted which houses the light source in its upper portion. Then an electronic circuit of power for the light source is associated with the supporting frame and a housing 33 for a power supply battery.

[0015] In particular, this binding mechanism includes a hook 5 having a ring-like portion 51 connected by at least one small jumper 52 to a semi-ring-like portion 53.

[0016] The paired ends of this semi-ring-like portion are hinged on the opposite sides of the lower edge 41 of the cap by means of a pair of hinges 35 which are inserted in the frame 3, in such way as to bind the hook, cap and supporting frame one to another in a jointed way.

[0017] The semi-ring-like portion is elastically deformable, thus, once the hook is rotated by means of the aforesaid hinges, the paired ends of the portion 51 lock into each other and grip onto the neck of the hollow body 2 of the buoy. The neck of the hollow body, to ensure greater stability of the bond, may have a ring edge 212, below which one creates a seating for the stable housing of that ring portion 51.

[0018] The supporting frame is made in a substantially cylindrical shape and the housings for the electronic circuit and the battery are created inside it, in such way that said frame can be inserted and removed from above in the upper opening of the hollow body. This facilitates replacement of the battery and avoids the presence of connectors which, sometimes, make the substitution operation complicated.

[0019] The light source is preferably a light source including one or more LED. The battery is a single conventional 1.5-volt battery. Indeed, the electronic circuit allows one to supply the LED for a long time with said battery, instead of the four or five batteries conventionally used in buoys of the prior art mentioned above.

[0020] Inside the buoy and associated with the electronic circuit for switching the light source on and off a switch is envisaged fitted with a magnetic sensor which is able to activate or deactivate the source itself in response to a magnetic solicitation.

[0021] On the external part of the body of the buoy, preferably in proximity of the lower edge 41, an on/off device is positioned which magnetically transmits its activating to the inside of the buoy to the magnetic sensor, which, in turn, activates an on/off switch connected to the luminous source.

[0022] In one form of creation, this on/off device 6 includes a ring-like portion 61 fitted with a seating 62 for the housing of a magnet. This ring-like portion can be engaged in proximity of the neck of the buoy and is able to rotate on said neck so that, by means of rotation, the seating of the magnet 62 encounters the magnetic sensor associated with the switch placed on the inside of the body of the buoy.

[0023] To facilitate the aforesaid operation, on the ring 61, two protrusions 63 and 64 are created which, during rotation, meet the same number of protrusions 513 and 514 created on the ends of the ring portion 51 determining two predetermined positions (on and off), one in which the magnet meets the magnetic sensor and therefore the switch lights the light source and one in which the switch disconnects or deactivates the light source.

[0024] The luminous signalling buoy, according to this invention, is susceptible to numerous modifications and variants, all coming under the same inventive concept. The materials used, the components and their sizes, may also be modified according to the needs without leaving the scope of protection of this invention.

2. Buoy according to claim 1, wherein said light on/off device is positioned in proximity of the lower edge (41) of the buoy body.

5 3. Buoy according to claim 1, wherein said light on/off device (6) comprises a ring-like portion (61) provided with a seating (62) for the housing of a magnet.

10 4. Buoy according to claim 3, wherein said ring-like portion is engageable in proximity of the neck of the buoy and it is able to rotate around said neck so that, by means of its rotation, the seating of the magnet (62) meets the magnetic sensor associated to the switch placed on the inside of the body of the buoy.

15 5. Buoy according to claim 2, wherein on the ring (61), in a suitable position, two protrusions (63, 64) are created, which, during the rotation, meet the same number of protrusions (513, 514) created on the ends of the ring-like portion (51) defining two predetermined positions, one in which the magnet meets the magnetic sensor (on) and therefore the switch turns the light source on and one in which the switch turns the light source off or deactivates it (off).

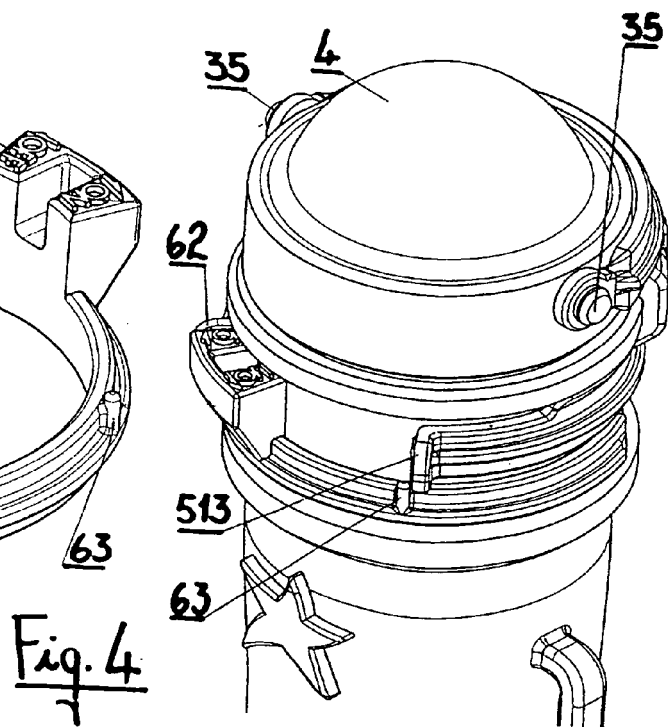
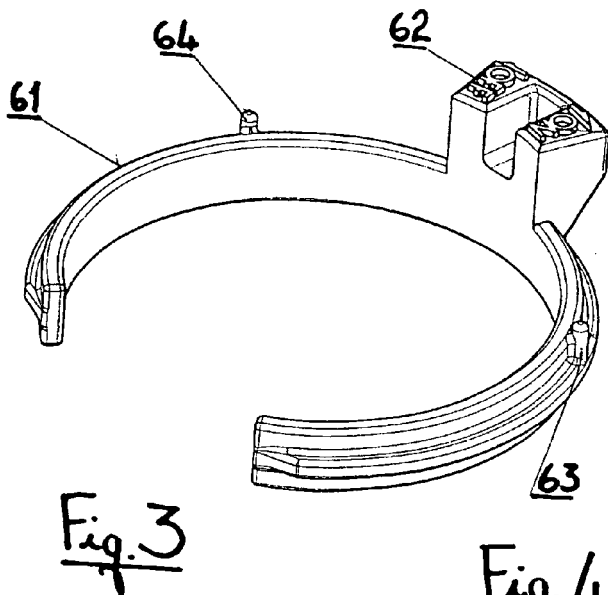
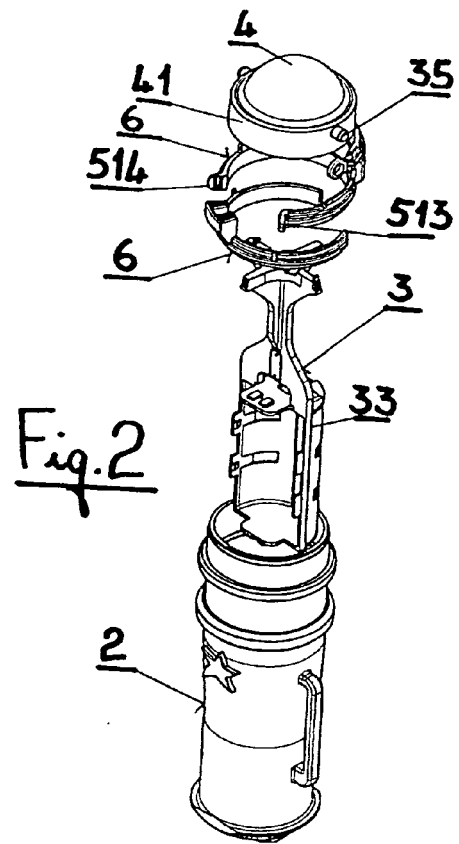
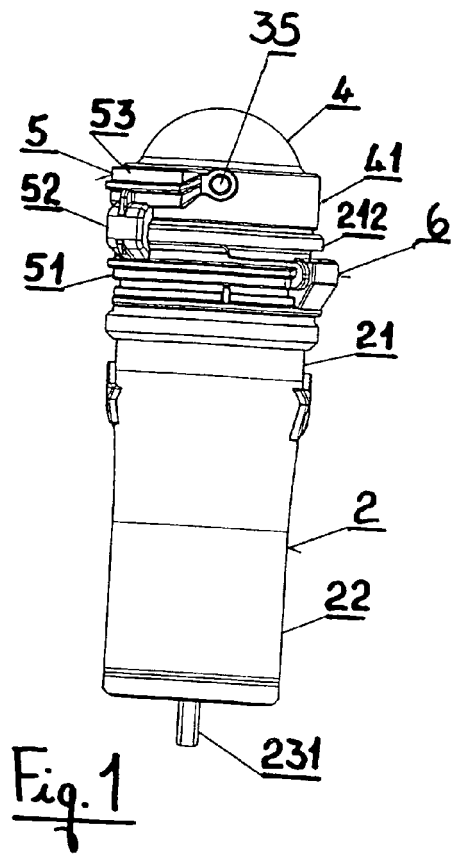
20 6. Buoy according to claim 5, wherein said protrusions are created onto the ends of the ring-like portion (51).

25 7. Buoy as by claim 1, wherein the light source is a light source comprising one or more LEDs.

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Claims

1. Luminous signalling buoy comprising a hollow, floating body (2) open in its upper part, the opening of which is closed by a transparent cap or capsule (4) that surrounds a light source and that allows the light emitted by said source to be visible from the outside, an extractable supporting frame (3) which houses the light source in its upper portion, an electronic circuit of power for the light source and a housing (33) for said power supply battery, **characterized by** the fact that said electronic circuit of power for the light source is provided with a switch equipped with a magnetic sensor which is able to activate or deactivate the source itself in reply to a magnetic solicitation, and that externally to the body of the buoy it is provided with a light on/off device which magnetically transmits to the inside of the buoy said magnetic solicitation so that said turning on and turning off switch, provided in the inside of the buoy body, turns on or turns off said light source.





EUROPEAN SEARCH REPORT

Application Number
EP 10 00 7895

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Y	* column 1, line 60 - column 2, line 25 * * column 3, lines 5-46 * * column 4, lines 8-10 * * column 5, lines 24-43,64-65 * * figures 1-4 *	7	
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A	----- DE 93 08 483 U1 (VEERS JENS-DETLEF) 12 August 1993 (1993-08-12) * page 1, line 7 - page 2, line 7 * * figure 2 *	1	TECHNICAL FIELDS SEARCHED (IPC) B63B B63C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 January 2011	Examiner Weber, Ingo
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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EP 10 00 7895

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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