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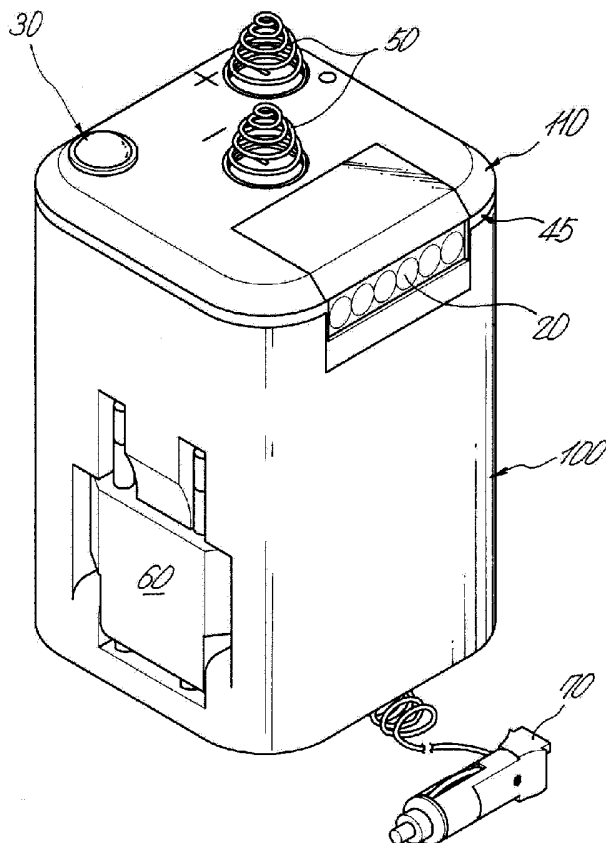
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: STORAGE BATTERY HAVING AN ILLUMINATION FUNCTION



(57) Abstract: The present invention relates to a dry storage battery having an illumination function, in which a recharging plug to be connected with an external power source is installed therein, the dry storage battery comprising: a case generally formed in the shape of a rectangular parallelepiped; a recharging module contained in the case; a cover for covering the top portion of the case; a light emitter recessively mounted at the top portion of the battery case; a window for covering the light emitter; a switch for turning the light emitter on and off; and a circuit board for controlling the light emitter and the switch.

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Description

STORAGE BATTERY HAVING AN ILLUMINATION FUNCTION

Technical Field

[1] The present invention relates to a dry storage battery having an illumination function, and more particularly to a dry storage battery which has a light emitter installed thereto to function as an illumination lamp when in emergency.

[2]

Background Art

[3] A battery refers to a device for directly converting chemical energy into electrical energy. It includes a primary battery for only discharging the electricity, and a secondary battery rechargeable after used up. Typically, the secondary battery is referred to as a storage battery, and also a subject matter of the present invention is directed to the secondary battery. The storage battery includes a wet storage battery which contains an electrolytic solution therein, and a dry storage battery which does not contain an electrolytic solution therein. The wet storage battery is primarily used for automobile or industrial purpose, whereas the dry storage battery is used as the power supply of various communication equipment, wireless electronic appliances, illumination devices such as, especially, a lantern, etc.

[4] A conventional dry storage battery for a lantern is designed to be recharged through an AC or DC plug installed at one side of a substantially rectangular parallelepiped of the battery and connected to an external power supply. However, such a conventional dry storage battery is available only for power supply use, and it has a limitation of being useless for illumination purpose, unless an extra illumination device such as a lantern, etc., is prepared.

[5]

Disclosure of Invention

Technical Problem

[6] Therefore, the present invention has been made to solve the above-mentioned limitation involved in the conventional dry storage battery, and it is an object of the present invention to provide a dry storage battery including an emergency light-emitter installed at its case provided with a recharging plug, so that it can be used for illumination purpose when in emergency, as well as for a power supply.

[7]

Technical Solution

[8] To achieve the above object, according to the present invention, there is provided a

dry storage battery having an illumination function, in which a recharging plug to be connected with an external power source is installed therein, the dry storage battery including: a case generally formed in the shape of a rectangular parallelepiped; a recharging module contained in the case; a cover for covering the top portion of the case; a light emitter recessively mounted at the top portion of the battery case; a window for covering the light emitter; a switch for turning the light emitter on and off; and a circuit board for controlling the light emitter and the switch.

[9]

Brief Description of the Drawings

[10] The above and other objects, features, and advantages of the present invention will become more apparent from the following description when taken in conjunction with the accompanying drawings, in which:

[11] FIG. 1 is a perspective view showing a dry storage battery according to the present invention,

[12] FIG. 2 is an exploded perspective view showing an embodiment of the present invention, and

[13] FIG. 3 is an exploded perspective view showing another embodiment of the present invention.

[14]

Best Mode for Carrying Out the Invention

[15] Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the attached drawings.

[16] FIG. 1 is a perspective view showing a dry storage battery according to the present invention, FIG. 2 is an exploded perspective view showing one embodiment of the present invention, and FIG. 3 is an exploded perspective view showing another embodiment of the present invention.

[17] A storage battery of the present invention includes a case 100 generally formed in the shape of a rectangular parallelepiped, a recharging module 200 contained in the case 100, and a cover 110 for covering the top portion of the case 100. At the case 100 are mounted a light emitter 10, a transparent window 20, a switch 10, and a printed circuit board (PCB) 40. The light emitter 10 may be, for example, an incandescent lamp 12 or LED 14. Although the light emitter 10 may be mounted at any position on the case 100, it is preferable that it is recessively installed at an edge of the top surface of the case 100.

[18] The window 20 is mounted in front of the light emitter 10 to protect it. The window 20 is made of a transparent or translucent plastic or glass. The window 20 may be integrally formed with the case 100 or the cover 110. Alternatively, the window 20

may be formed detachably for easier replacement of the light emitter 10.

[19] The switch 30 is installed between the recharging module 200 for supplying the light emitter 10 with electricity and the light emitter 10. Any type of switch may be used, but it will be convenient to use a button type switch.

[20] The printed circuit board (PCB) 40 serves to connect the light emitter 10 and the switch 30 and control them.

[21] FIG. 2 shows one embodiment of the present invention. As shown in FIG. 2, the recharging module 200 is contained in the case 100, the circuit board 40 is disposed thereon, and the incandescent lamp 12 and the switch 30 are mounted at a side edge portion of the printed circuit board 40. On the printed circuit board 40, an upper plate 45 and the cover 110 are disposed in turn. The window 20 is detachably installed in front of the incandescent lamp 12. An output terminal 50 is mounted on the upper plate 45 in such fashion as to protrude upwardly from the cover 110.

[22] FIG. 3 shows another embodiment of the present invention. Referring to FIG. 3, LED 14 replaces the incandescent lamp 12 as a light emitter 10. In addition, the window 20 is formed integrally with the upper plate 45 of a transparent material, and the upper plate 45 and the cover 110 are adhesively coupled to each other into one piece.

[23] The dimension of the case 100 of the storage battery according to the present invention is identical to that of a typical dry storage battery, such that the inventive storage battery can be generally used as the power supply for electronic appliances and illumination devices, especially, a lantern.

[24] Further, at one side of the case 100 are installed recharging plugs, i.e., an AC plug 60 and a DC plug 70 connected to an external power supply for allowing the electric power to be supplied to the recharging module 200.

[25] The recharge plugs may include either the AC plug 60 or the DC plug 70, or both of them.

[26] In addition, the DC plug 70 may be, for example, a cigar jack plug connected to an auxiliary power receptacle installed inside an automobile.

[27] While the present invention has been described with reference to the particular illustrative embodiments, it is not to be restricted by the embodiments but only by the appended claims. It is to be appreciated that those skilled in the art can change or modify the embodiments without departing from the scope and spirit of the present invention.

[28] For example, the location of the light emitters 10 and the switch 30 may be changed diversely, and by forming the whole cover 110 with a transparent material, the cover 110 may function as a substitute for the window 20. However, these changes are all construed to be within the scope of the present invention.

[29]

Industrial Applicability

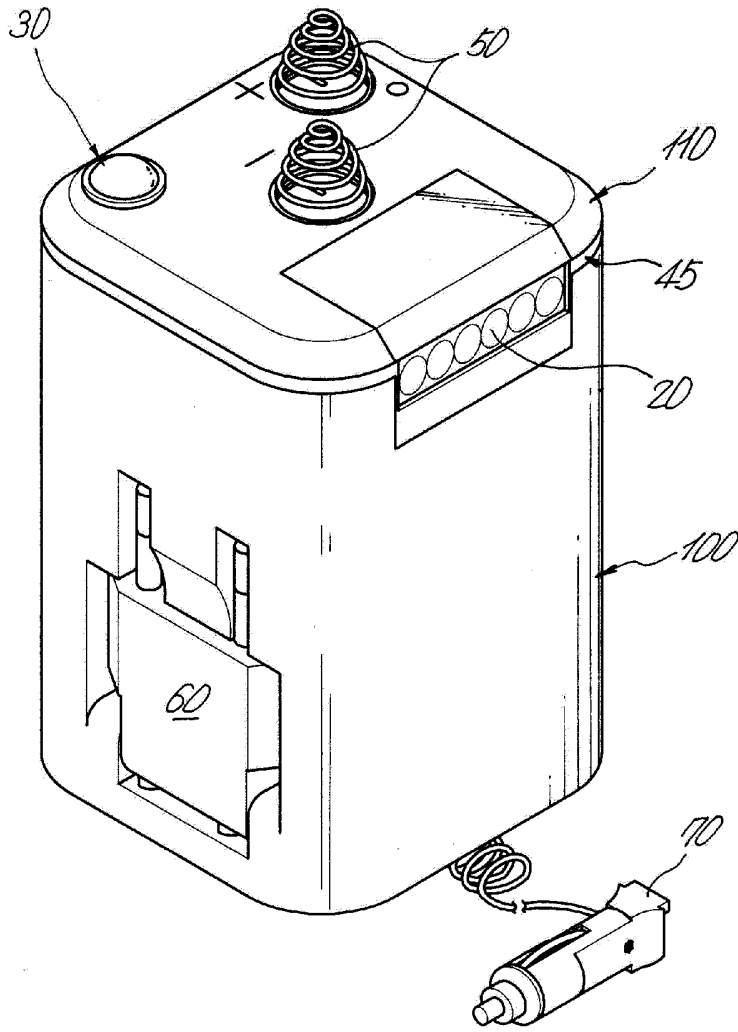
[30]

According to the present invention, by mounting an emergency light emitter to a dry storage battery which was typically used for supply the electric power to various electronic appliances and illumination devices, the battery itself can be used for illumination purpose when in emergency, and also it can be used as a substitute for a lantern when the lantern is not yet prepared.

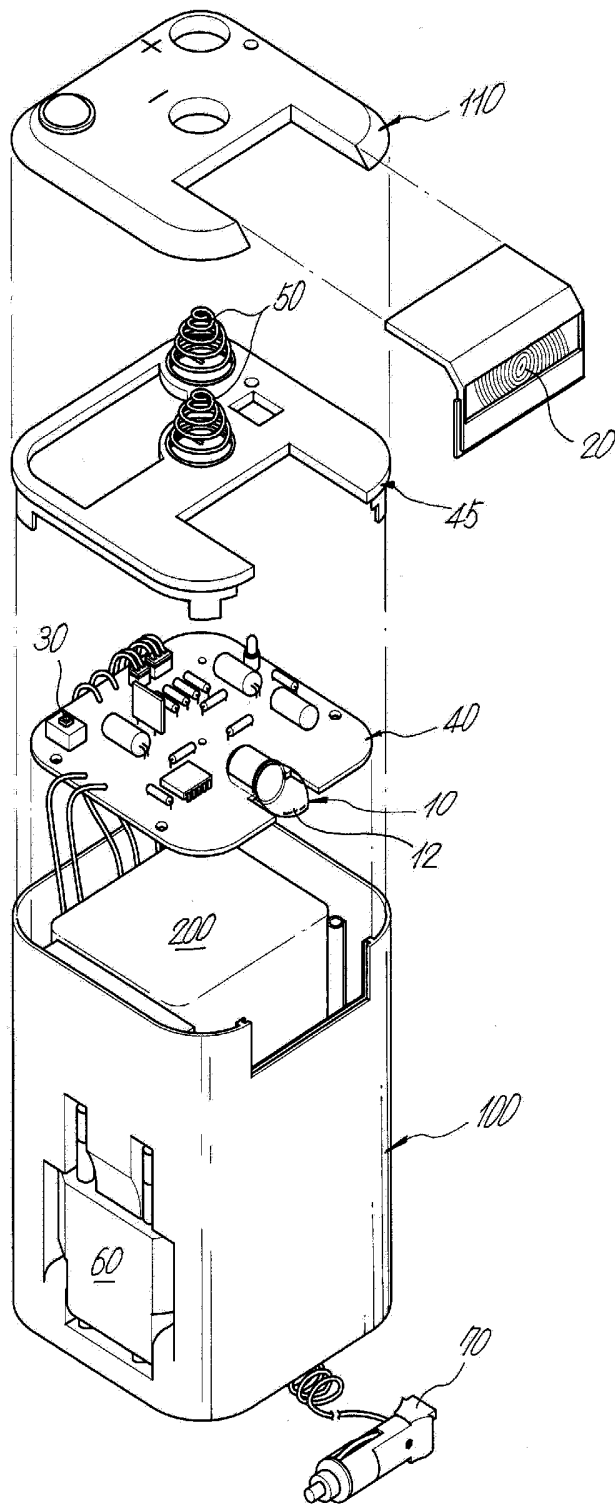
Claims

- [1] A dry storage battery having an illumination function, in which a recharging plug to be connected with an external power source is installed therein, the dry storage battery comprising:
- a case generally formed in the shape of a rectangular parallelepiped;
 - a recharging module contained in the case;
 - a cover for covering the top portion of the case;
 - a light emitter recessively mounted at the top portion of the case;
 - a window for covering the light emitter;
 - a switch for turning the light emitter on and off; and
 - a circuit board for controlling the light emitter and the switch.
- [2] The dry storage battery according to claim 1, wherein the light emitter is an incandescent lamp.
- [3] The dry storage battery according to claim 1, wherein the light emitter is an LED.

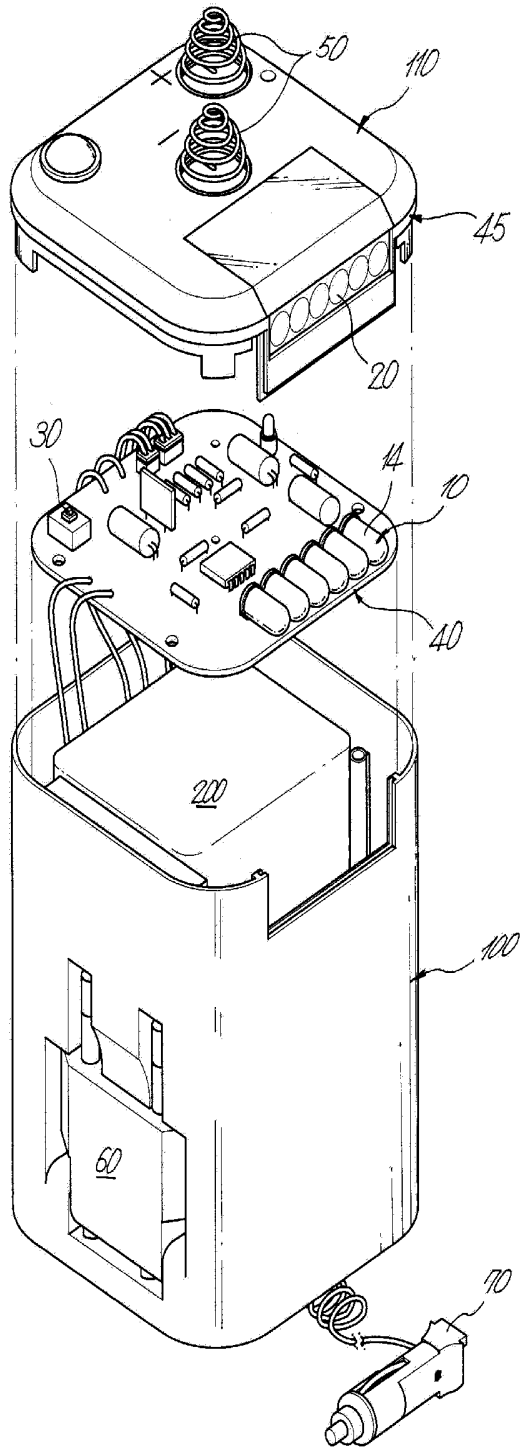
[Fig. 1]



[Fig. 2]



[Fig. 3]



A. CLASSIFICATION OF SUBJECT MATTER**IPC7 H01M 2/10**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01M 2/10, H01M 14/00, H01M 10/48, H01M 10/44, H02K 7/14, A61B 1/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975.

Korean Utility models and applications for Utility models since 1975.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

KIPONET II

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4546761 A (MCCULLOUGH CARTWRIGHT PHAR. CORP.) 15 OCTOBER 1985 * the whole document *	1 - 3
A	US 4861685 A (SPENCER W. H. and RONNIE A. MATHENY) 29 AUGUST 1989 * the whole document *	1 - 3
A	US 5177424 A (WELCH ALLYN INC.) 5 JANUARY 1993 * the whole document *	1 - 3
TA	KR 2005-102315 A (PANTECH & CURITEL) 26 OCTOBER 2005 * the whole document *	1 - 3

 Further documents are listed in the continuation of Box C. See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4546761 A	15.10.85	NONE	
US 4861685 A	29.08.89	NONE	
US 5177424 A	05.01.93	EP 533599 A1 CA 2078644 AA	24.03.93 22.11.92
KR 2005-102315 A	26.10.05	NONE	