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(71) Applicant: **HANGZHOU TIGER ELECTRON & ELECTRIC CO., LTD**
Xingqiao Town, Yuhang District
Hangzhou
Zhejiang 311100 (CN)

(72) Inventor: **WANG, Peicheng**
Hangzhou
Zhejiang 311100 (CN)

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(74) Representative: **ProI European Patent Attorneys**
Postfach 2123
90711 Fürth (DE)

(54) **PLASTIC CLAD ALUMINUM LED LIGHT BULB**

(57) The present invention relates to a plastic-coated aluminum lamp. The LED lamp panel is provided with a small separator, two ends above the small separator being each provided with a rib, the rib being provided with a slot for accommodating a PCB of the drive power supply, two barbs each having an open slot being provided beneath the small separator and being inserted in jacks on the LED lamp panel; and the small separator located in the middle of the open slot is provided with wiring holes, and the drive power supply is connected to the LED lamp panel by two pins of an electrolytic capacitor on the PCB of the drive power through the wiring hole. The LED lamp according to the present invention has simple and reliable structure, is conveniently to assemble, has high efficiency, and is suitable for automation and large-scale production. Therefore, the costs of materials and production may be greatly reduced, and large-scale application of energy-saving and environmentally-friendly illumination is greatly promoted.

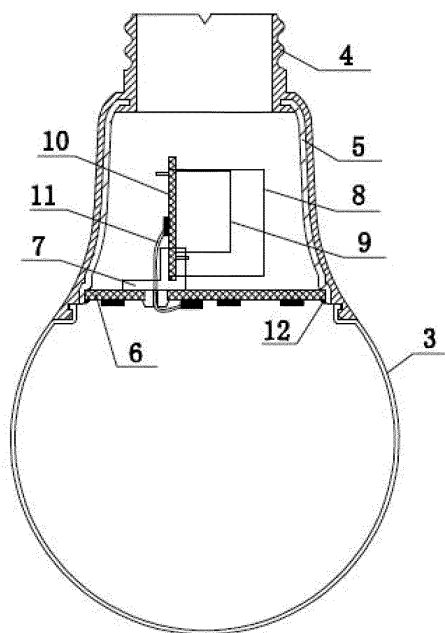


FIG. 2

Description

TECHNICAL FIELD

[0001] The present invention relates to a plastic-coated aluminum lamp.

BACKGROUND

[0002] With respect to drive power supplies for the conventional LED lamps, the mounting thereof is complicated and the stability is poor. Generally, power wires are fixed by using glues or adhesive tapes or screws, or welded for connection. In this case, the mounting is very complicated and subjected to some safety latent risks.

SUMMARY

[0003] In view of the problem existent in the related art, the present invention is intended to provide a plastic-coated aluminum LED lamp.

[0004] The plastic-coated aluminum LED lamp comprises: a lamp holder, an upper cap, a bulb shell, an LED lamp panel and a drive power supply, the lamp holder being thread-connected to the upper cap, wherein the LED lamp panel is provided with a small separator, two ends above the small separator being each provided with a rib, the rib being provided with a slot for accommodating a PCB of the drive power supply, two barbs each having an open slot being provided beneath the small separator and being inserted in jacks on the LED lamp panel; and the small separator located in the middle of the open slot is provided with wiring holes, and the drive power supply is connected to the LED lamp panel by two pins of an electrolytic capacitor on the PCB of the drive power through the wiring hole.

[0005] In the plastic-coated aluminum LED lamp, the upper cap is a plastic-coated aluminum shell, an outer layer of the shell being a plastic element, an inner layer thereof being an aluminum cup, and an inner side of an outer edge of the aluminum cup being provided with an L-shaped step for accommodating the LED lamp panel.

[0006] In the plastic-coated aluminum LED lamp, the LED lamp panel and the aluminum cup are connected by interference fit.

[0007] In the plastic-coated aluminum LED lamp, a joint between the LED lamp panel and the aluminum cup is provided with glue.

[0008] In the plastic-coated aluminum LED lamp, the LED lamp panel comprises an aluminum substrate and LED beads adhered on the aluminum substrate.

[0009] In the plastic-coated aluminum LED lamp, the bulb shell is clamped on the plastic element of the upper cap.

[0010] In the plastic-coated aluminum LED lamp, the bulb shell is adhered on the plastic element of the upper cap.

[0011] The LED lamp according to the present inven-

tion has simple and reliable structure, is conveniently to assemble, has high efficiency, and is suitable for automation and large-scale production. Therefore, the costs of materials and production may be greatly reduced, and large-scale application of energy-saving and environmentally-friendly illumination is greatly promoted.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

FIG. 1 is a schematic view of an LED lamp;
FIG. 2 is a schematic structural view of an LED lamp according to the present invention;
FIG. 3 is a schematic structural view of a small separator according to the present invention;
FIG. 4 is a bottom view of FIG. 3; and
FIG. 5 is a right view of FIG. 3.

[0013] In the drawings, 1 denotes a lamp holder, 2 denotes an upper cap, 3 denotes a bulb, 4 denotes a plastic member, 5 denotes an aluminum cup, 6 denotes an LED lamp panel, 7 denotes a small separator, 8 denotes a drive power supply, 9 denotes an electrolytic capacitor, 10 denotes a PCB, 11 denotes pins of the electrolytic capacitor, 12 denotes glue, 13 denotes a rib, 14 denotes a slot, 15 denotes a wiring hole, 16 denotes a barb, and 17 denotes an open slot.

DETAILED DESCRIPTION

[0014] The present invention is further described with reference to the accompanying drawings.

[0015] A plastic-coated aluminum LED lamp comprises: a lamp holder 1, an upper cap 2, a bulb shell 3, an LED lamp panel 6 and a drive power supply 8, the lamp holder 1 being thread-connected to the upper cap 2, wherein the LED lamp panel 6 is provided with a small separator 7, two ends above the small separator 7 being each provided with a rib 13, the rib 13 being provided with a slot 14 for accommodating a PCB of the drive power supply, two barbs 16 each having an open slot 17 being provided beneath the small separator 7 and being inserted in jacks on the LED lamp panel, thereby fixing the drive power supply; and the small separator located in the middle of the open slot 17 is provided with wiring holes 15, and for reduce the processes, and the drive power supply is connected to the LED lamp panel by two pins (pins 11 of the electrolytic capacitor) of an electrolytic capacitor 9 on the PCB of the drive power through the wiring hole.

[0016] The upper cap 2 according to the present invention is a plastic-coated aluminum shell, an outer layer of the shell being a plastic member 4, and an inner layer thereof being an aluminum cup 5. The LED lamp panel and the aluminum cup are connected by interference fit through an L-shaped step arranged on an inner side of an outer edge of the aluminum cup, and a joint between

the LED lamp panel 6 and the aluminum cup may be provided with glue 12 to enhance the stability thereof; wherein the bulb shell is clamped or adhered on the plastic element of the upper cap.

[0017] The LED lamp panel according to the present invention comprises an aluminum substrate and LED beads adhered on the aluminum substrate.

[0018] During assembly, the small separator is clamped on the LED lamp panel through the barbs, the PCB of the drive power supply is inserted into the slot on the small separator, two pins of the electrolytic capacitor are made pass through the wiring holes in the barbs of the small separator, the two pins are afterwards tipped over and then welded on the LED lamp panel, and then the LED lamp panel is tightly pressed into the aluminum cup of the upper cap and then glue is applied thereto. Finally, the lamp holder is assembled and the bulb shell is clamped thereto. In this case, the assembly of the entire lamp is complete.

an aluminum substrate and LED beads adhered on the aluminum substrate.

6. The plastic-coated aluminum LED lamp according to claim 2, wherein the bulb shell is clamped on the plastic element of the upper cap.
7. The plastic-coated aluminum LED lamp according to claim 2, wherein the bulb shell is adhered on the plastic element of the upper cap.

Claims

1. A plastic-coated aluminum LED lamp, comprising a lamp holder, an upper cap, a bulb shell, an LED lamp panel and a drive power supply, the lamp holder being thread-connected to the upper cap, wherein the LED lamp panel is provided with a small separator, two ends above the small separator being each provided with a rib, the rib being provided with a slot for accommodating a PCB of the drive power supply, two barbs each having an open slot being provided beneath the small separator and being inserted in jacks on the LED lamp panel; and the small separator located in the middle of the open slot is provided with wiring holes, and the drive power supply is connected to the LED lamp panel by two pins of an electrolytic capacitor on the PCB of the drive power through the wiring hole.
2. The plastic-coated aluminum LED lamp according to claim 1, wherein the upper cap is a plastic-coated aluminum shell, an outer layer of the shell being a plastic element, an inner layer thereof being an aluminum cup, and an inner side of an outer edge of the aluminum cup being provided with an L-shaped step for accommodating the LED lamp panel.
3. The plastic-coated aluminum LED lamp according to claim 2, wherein the LED lamp panel and the aluminum cup are connected by interference fit.
4. The plastic-coated aluminum LED lamp according to claim 3, wherein a joint between the LED lamp panel and the aluminum cup is provided with glue.
5. The plastic-coated aluminum LED lamp according to claim 1, wherein the LED lamp panel comprises

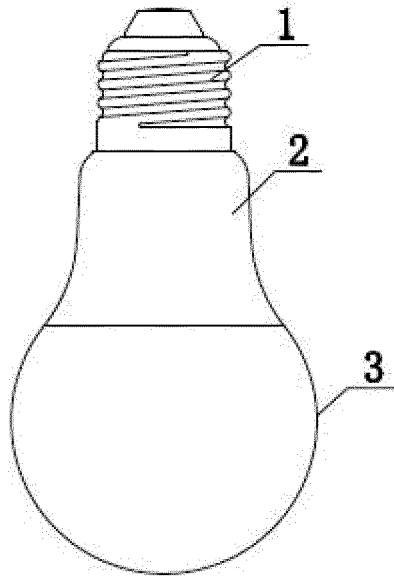


FIG. 1

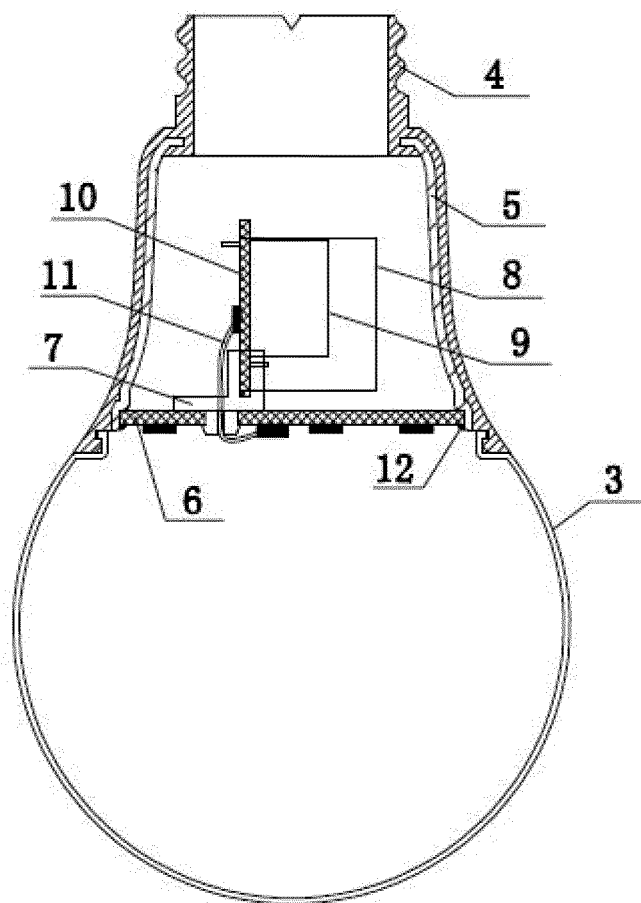


FIG. 2

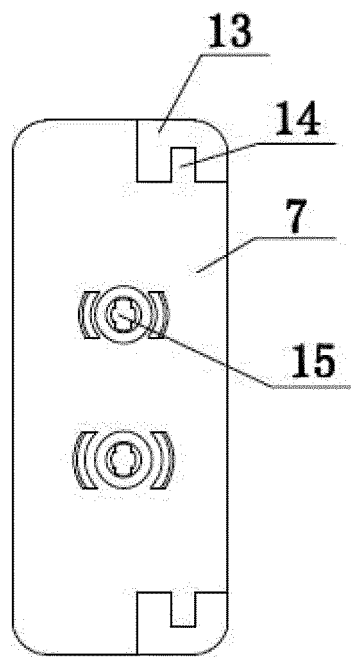


FIG. 3

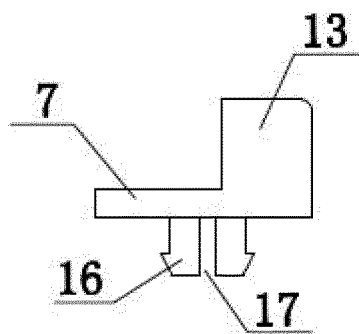


FIG. 4

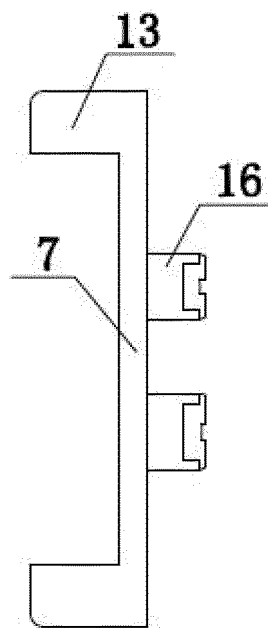


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2015/091291

A. CLASSIFICATION OF SUBJECT MATTER

F21S 2/00 (2016.01) i; F21V 15/02 (2006.01) i; F21V 17/10 (2006.01) i; F21V 23/00 (2015.01) i
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)

F21S 2/-; F21V 15/-; F21V 17/-; F21V 23/-

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPTXT; CNABS; USTXT; CATXT; GBTXT; WOTXT; VEN; CNKI: aluminium coated plastic, operate, PCB, LED, aluminum, plate, lamp, slot, groove, hook, alclad, bulb, barb

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 202032335 U (NATIONAL STATE INDUSTRIAL LTD.), 09 November 2011 (09.11.2011), description, paragraphs 0015-0021, and figures 1-5	1-7
A	CN 203147651 U (SICHUAN DONGSHUN PHOTOELECTRIC CO., LTD.), 21 August 2013 (21.08.2013), the whole description	1-7
A	DE 202014105650 U1 (LAC OPTO ELECTRONICS CO., LTD.), 19 March 2015 (19.03.2015), the whole description, and figures 1-8	1-7
A	US 2013128573 A1 (HUIZHOU LIGHT ENGINE LIMITED), 23 May 2013 (23.05.2013), the whole description, and figures 1-7	1-7
A	US 2015211719 A1 (MOON, D. et al.), 30 July 2015 (30.07.2015), the whole description, and figures 1-8	1-7

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

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 202032335 U	09 November 2011	None	
CN 203147651 U	21 August 2013	None	
DE 202014105650 U1	19 March 2015	CN 204284985 U	22 April 2015
US 2013128573 A1	23 May 2013	WO 2013076578 A2	30 May 2013
		US 9212801 B2	15 December 2015
		WO 2013076578 A3	08 August 2013
		CN 103946622 B	29 July 2015
		CN 103946622 A	23 July 2014
US 2015211719 A1	30 July 2015	US 9200786 B2	01 December 2015
		WO 2015109548 A1	30 July 2015

Form PCT/ISA/210 (patent family annex) (July 2009)