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(71) Applicant: **Zhejiang Nasun Electron Technology Co., Ltd**
Yueqing City, Zhejiang Province (CN)

(72) Inventor: **Lee, Zhirong**
Wenzhou, Zhejiang (CN)

(74) Representative: **Intès, Didier Gérard André et al**
Cabinet Beau de Loménie
158, rue de l'Université
75340 Paris Cedex 07 (FR)

(54) **High power led street light structure**

(57) Street light, particularly a high power LED light, where a multi-sided body (7), ranging from 4 to 12 sides, is used to house LED lights (6) and then connected to PCB inside a main chassis, connected by a heat ring. This type of high power LED street light provides a simple design for lost-cost production of street lighting that is long-lasting and results in low maintenance cost to the use and care of such street lighting.

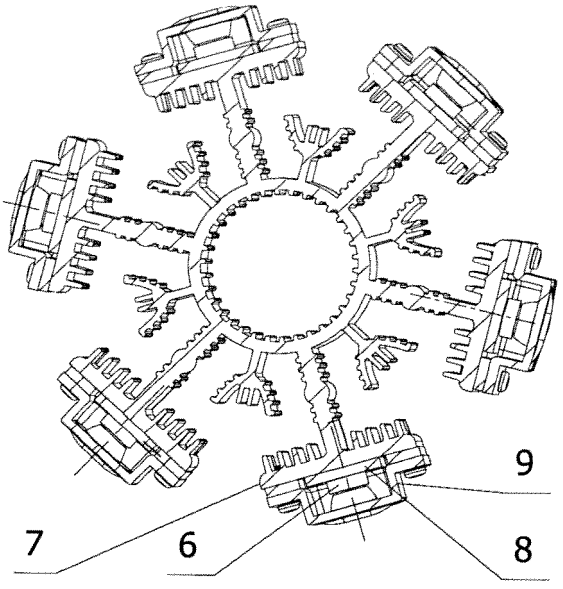

FIGURE 2

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Description

FIELD AND BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to street light structure where LED lights are used to produce lighting, resulting in lesser consumption of electricity and lesser need for maintenance and thus substantial cost-saving.

[0002] Traditionally, street lighting is done by incandescent lighting, halogen lighting, sodium vapor lighting, or fluorescent lighting. Incandescent lighting consumes lot of power and generates substantial heat. Moreover, not enough lighting is produced by this traditional method.

[0003] Halogen lighting, though producing strong lighting effect, also consumes a lot of electricity.

[0004] Fluorescent lighting uses less electricity, but requires a lot more monitoring and maintenance to replace burnout lights.

[0005] Sodium vapor lighting, though consuming less electricity compared to incandescent light, contains mercury in some version and is a source of pollution to the environment.

SUMMARY OF PRESENT INVENTION

[0006] Present invention provides a multi-sided structure, such as a hexagonal structure, that uses a number of low wattage LED light, each is around 0.5 W - 3W, so that they are arranged on the "fan" part of the multi-sided structure, which has an aluminum plate that houses the LED lights, where a layer of water-proofing is situated between the fan part and the aluminum plate.

[0007] A lens is used on the outside surface of said LED lights, so that the lighting effect is focused and adjusted more effectively for lighting purpose.

[0008] LED light is the new trend for general lighting, since it uses roughly 20% of the electricity used to produce equivalent amount of lighting by a high-pressure Sodium light. Besides, LED light is more environmentally friendly because it contains no lead or mercury and thus not create the pollution associated with the two types of metal that are known to be harmful to the environment and to human health.

[0009] The street lighting based upon the LED lights allows working temperature between -20 °C and +65 °C and has a wide range of applicability than other type of lighting, in addition to the save electricity cost.

[0010] Also, the use of aluminum plate provides a lightweight yet heavy-duty structure for long-term use, and thus is good for street lighting purpose.

DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate the preferred embodiments of the invention and together with the description, serve to the principles of the invention, but are not to limit the scope of present invention to the extent present invention is applicable.

[0012] Fig. 1 shows the main side view of present LED street light structure.

[0013] Fig. 2 shows the structural cross-sectional view of present LED street light, along the A-A orientation in Fig. 1.

[0014] Fig. 3 shows the exploded view of present LED street light, with components drawn out for numbering identification.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0015] The high power LED street light of present invention primarily consists of a head portion 1, which connected to a head connector 2 to a main chassis 3, which is then attached to a multi-sided body 7 (here in this particular embodiment, it is a hexagonal body, having 6 fan portions), via heat ring 4, as shown in Fig. 1 and Fig. 2.

[0016] A printed circuit board (PCB) 5 is located inside said main chassis 3, to provide the electrical connection to a plurality of LED lights 6 placed on the outside surface of the "fan" on said hexagonal body 7.

[0017] The A-A line in Fig. 1 forms the reference plane for the profile image of the Fig. 2, showing the 6-sided structure of the hexagonal body 7.

[0018] As shown in Fig. 2, on each "fan" portion of said hexagonal body 7, a string of LED lights 6 is placed on an aluminum plate 8. An optical lens 9 is located on the outside surface of each of the LED light 6.

[0019] A layer of washer piece 10 is sandwiched between said aluminum plate 8 and each one of the six "fan" portion of said hexagonal body 7, to provide for a water-proof structure, as exemplified in Fig. 3, which is an exploded view of the components.

[0020] Although the present disclosure uses the example of a hexagonal body, the same principle can be applied to alternative embodiment of high power LED light wherein the string of LED lights can be placed on a four-sided, eight-side, ten-sided or twelve-sidled structure, depending implementation.

Claims

1. A high power LED street light, comprising:

A head portion (1);
A head connector (2);
A main chassis (3) containing a printed circuit board (5) inside;
A heat ring (4); **characterized in that** it further comprises
A plurality of LED lights (6);
A hexagonal body (7) forming six fan portions where each of said six fan

portions has a washer piece (10) sandwiched between said fan surface and an aluminum plate (8) upon which said LED lights (6) are located, so that said washer piece (10) serves to provide water- proofing function; and,
A cover lens (9) on the outside surface of each LED light (6).

2. The street light of claim 1, wherein each of the LED lights (6) has power rating between 0.5W to 3W.

3. A high power LED street light, comprising:

A head portion (1);
A head connector (2);
A main chassis (3) containing a printed circuit board (5) inside;
A heat ring (4); **characterized in that** it further comprises
A plurality of LED lights (6);
A multi-sided body (7), where each side forms a fan portion, each fan
portion having a washer piece (10) sandwiched between said fan surface and an aluminum plate (10) upon which said LED lights (6) are located, so that said washer piece (10) serves to provide water-proofing function; and,
A cover lens (9) on the outside surface of each LED light (6).

4. The street light of claim 3 wherein the multi-sided body (7) can be four, six, eight, ten or twelve-sided, containing the amount of fans accordingly.

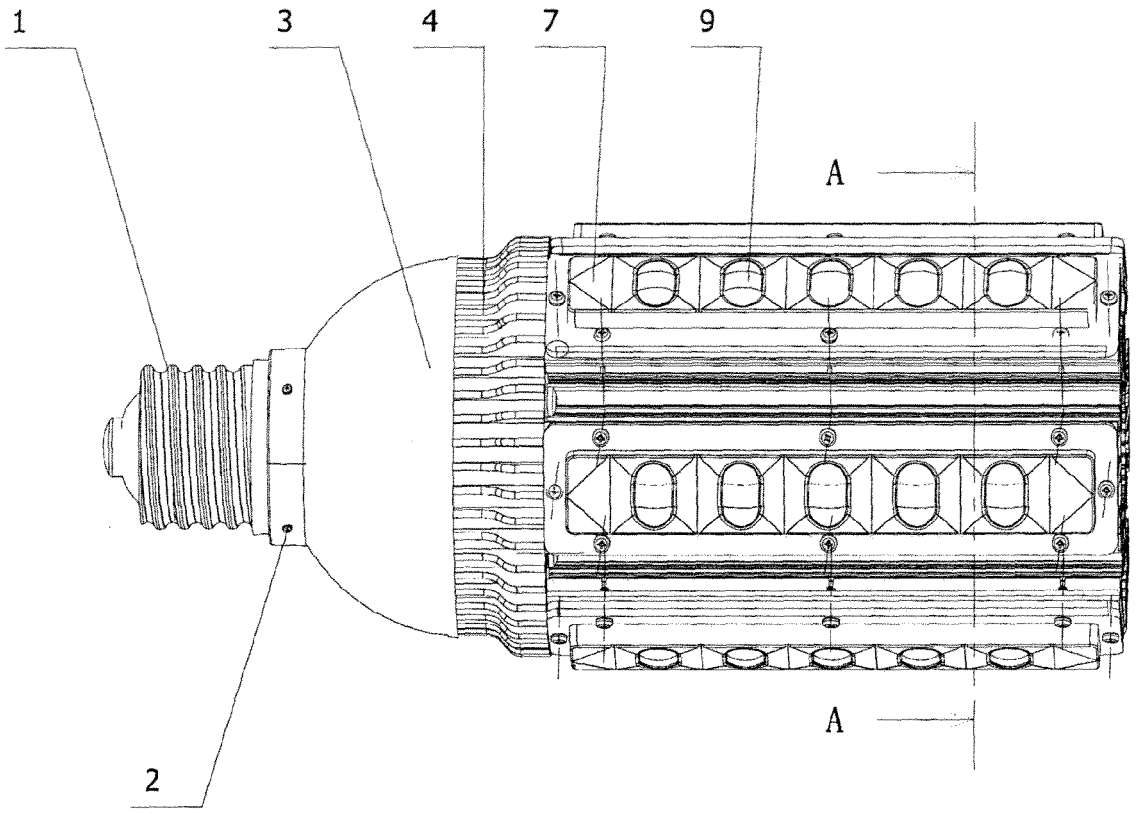

FIGURE 1

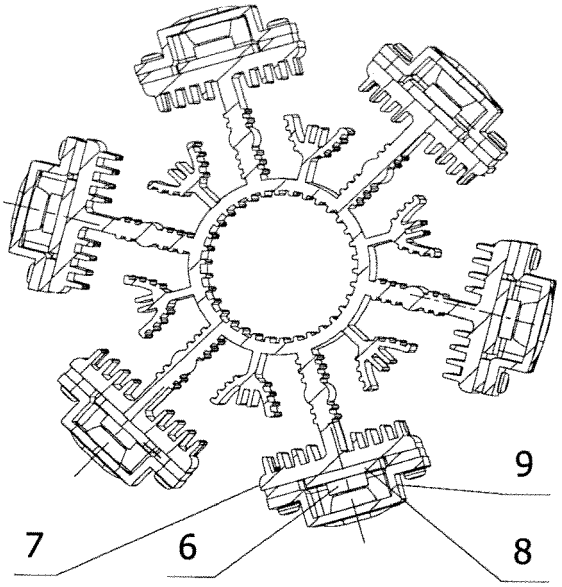

FIGURE 2

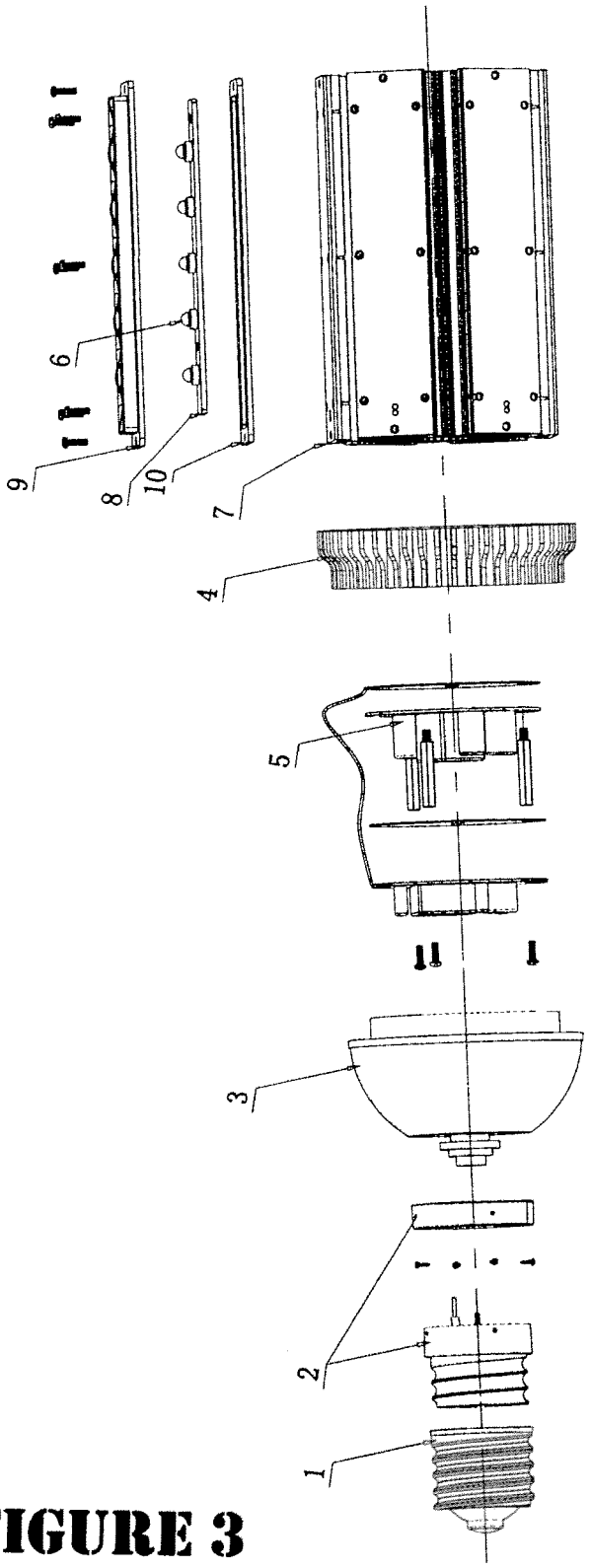

FIGURE 3

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EUROPEAN SEARCH REPORT

Application Number
EP 10 17 5298

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2009/116233 A1 (ZHENG SHI-SONG [CN] ET AL) 7 May 2009 (2009-05-07) * paragraph [0014] - paragraph [0024]; figures 1-4 * -----	1-4	INV. F21V29/00 F21K99/00
A	WO 2008/070519 A2 (ABL IP HOLDING LLC [US]; DOROGI MICHAEL JAY [US]) 12 June 2008 (2008-06-12) * page 9, line 20 - page 15, line 8; figures 1-6 * -----	1-4	
A	US 2008/316755 A1 (ZHENG SHI-SONG [CN] ET AL) 25 December 2008 (2008-12-25) * paragraph [0012] - paragraph [0020]; figures 1-3 * -----	1-4	
			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
Munich	18 October 2010	Arboreanu, Antoniu

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 17 5298

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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18-10-2010

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