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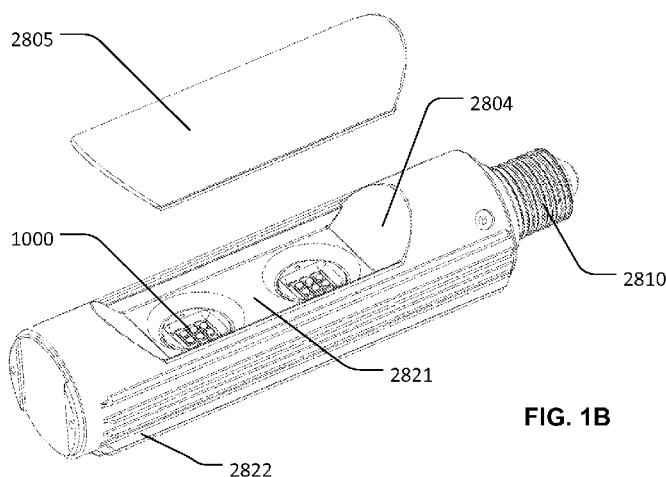


FIG. 1B

(57) Abstract: A LED lighting device is disclosed. The LED lighting device includes one or more of the following components, in any combination: structural body with heat-fins, LED light module, LED driver circuit board, electrical screw-cap, thermal end-cap, heat transport device, heat-sink and heat-foil. This invention presents a substantial cost saving in the LED adaptation to retrofit the existing light fixtures and luminaires. Its other advantages include, without limitation, having standard electrical connector to achieve ease of use and interchangeability, reduced light loss by having its own integrated build-in reflector with more effective optical design, an increase in energy saving through thermal solutions to lower LED's operating junction temperature for better performance and increased reliability.



A. CLASSIFICATION OF SUBJECT MATTER*F21V 29/00(2006.01)i, F21V 17/00(2006.01)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)

F21V 29/00; F21S 2/00; B60Q 1/06; F21V 1/00; F21S 4/00; H01R 33/02

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: LED, luminaire, heat sink, heat fin, heat foil, and reflector

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	KR 20-2009-0000077 U (JUN, BYUNGKYU) 07 January 2009 See the abstract; paragraphs [0028] - [0053]; claims 1-4; and figure 1	1-2,4,9 3,10-11,14-15 5-8,12-13,16-19
Y A	US 2008-0158887 A1 (ZHU MING-WU et al.) 03 July 2008 See the abstract; paragraphs [0018] - [0024]; claims 1, 9, 12; and figures 1-2	3,10 1-2,4-9,11-19
Y A	US 2010-0208460 A1 (LADEWIG CHRISTOPHER et al.) 19 August 2010 See the abstract; paragraphs [0021] - [0038]; claims 1, 15, 21; and figures 1, 5	11,14-15 1-10,12-13,16-19
A	KR 10-2009-0010298 A (DOOLIM SYSTEM CO., LTD.) 30 January 2009 See the abstract; paragraphs [0036] - [0045]; claim 1; and figures 1-4	1-19
A	WO 2011-030949 A1 (JEONG, BYUNG CHUN) 17 March 2011 See the abstract; paragraphs [0041] - [0061]; claims 1, 4; and figures 1-4	1-19

 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
KR 20-2009-0000077 U	07.01.2009	None	
US 2008-0158887 A1	03.07.2008	CN 101210664 A	02.07.2008
US 2010-0208460 A1	19.08.2010	None	
KR 10-2009-0010298 A	30.01.2009	None	
WO 2011-030949 A1	17.03.2011	KR 10-2011-0026598 A	16.03.2011