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(71) Applicant (for all designated States except US): **EASY INTERNATIONAL S.R.L.** [IT/IT]; Piazza S. Ambrogio, 16, I-20123 Milano (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ABATE, Valerio** [IT/IT]; c/o Easy International S.r.l., Piazza S. Ambrogio, 16, I-20123 Milano (IT). **CONTI, Alberto** [IT/IT]; c/o Easy International S.r.l., Piazza S. Ambrogio, 16, I-20123 Milano (IT). **BIANCHI, Michela** [IT/IT]; c/o Easy International S.r.l., Piazza S. Ambrogio, 16, I-20123 Milano (IT).

(74) Agents: **FUOCHI, Riccardo** et al.; APTA S.r.l., Via dei Mille, 9, I-37126 Verona (IT).

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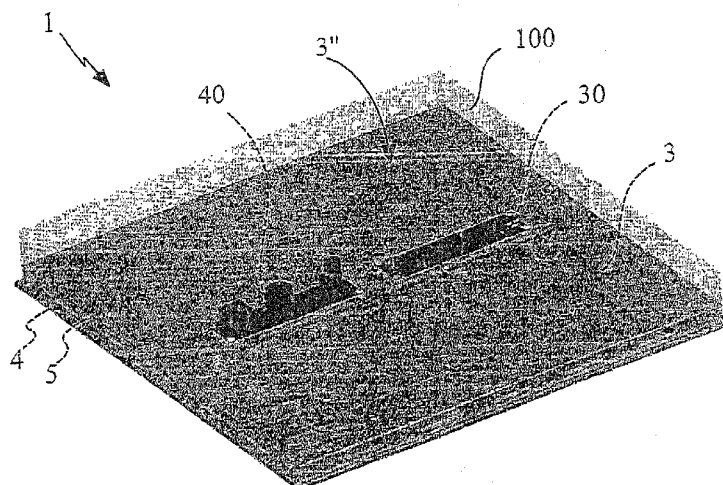


Fig. 1

(57) Abstract: LED lamp including a plurality of single LEDs mounted on a common support structure and electrically connected together to receive current from a common power source. The support structure consists of a sheet of plate, thermally connected to the LEDs to dissipate heat thereof, which has a plurality of fins oriented according to lying plane, each bearing mounted a LED. It is also presented a method of designing the lamp starting from the lighting needs of the surface to be illuminated which are translated into constraint conditions for the realization of the lamp and for the disposition of the more appropriate sources.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2009/050778

A. CLASSIFICATION OF SUBJECT MATTER

INV. F21K7/00 H01L25/13 H01L27/32 H01L33/00 H05K1/00

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)

F21K H01L H05K

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 practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/027598 A1 (INTEDIS GMBH & CO KG [DE]; WAGEMANN ROLF [DE]; BRACHTENDORF MARKUS [DE] 24 March 2005 (2005-03-24) the whole document	1-14
X	DE 103 51 462 A1 (HELLA KGAA HUECK & CO [DE]) 9 June 2005 (2005-06-09) the whole document	1-14
X	WO 2006/066636 A1 (FREUDENBERG CARL KG [DE]; FRIEBUS OLIVER [DE]) 29 June 2006 (2006-06-29) the whole document	1-14
	-/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *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)
- *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

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- *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
- *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.
- * & * document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Berthommé, Emmanuel

INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/046045 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; DONNERS MAURICE A H [NL]) 26 April 2007 (2007-04-26) page 6, last paragraph - page 7, paragraph f; figure 6. -----	1-2,9,12
X	US 2005/225222 A1 (MAZZOCHETTE JOSEPH [US] ET AL) 13 October 2005 (2005-10-13) paragraphs [0031] - [0033]; figures 12-14 -----	1-5,9-13
X	US 5 519 596 A (WOOLVERTON DOUGLAS P [US]) 21 May 1996 (1996-05-21) page 2, line 56 - page 3, line 26; figures -----	1
X	US 6 450 663 B1 (REINBACH MARTIN [NZ]) 17 September 2002 (2002-09-17) column 3, line 48 - column 4, line 12; figures -----	1
X	EP 1 345 274 A2 (HONDA MOTOR CO LTD [JP]; STANLEY ELECTRIC CO LTD [JP]) 17 September 2003 (2003-09-17) -----	1
A	paragraphs [0015] - [0017]; figures -----	9
X,P	EP 1 945 007 A1 (SCHREDER [BE]) 16 July 2008 (2008-07-16) the whole document -----	21-27
A	EP 1 632 711 A2 (POLLMANN AUSTRIA OHG [AT]) 8 March 2006 (2006-03-08) the whole document -----	1-20

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 15-18

Due to the bad quality of the copy of the drawings, it has not been possible to make a meaningful search with regard to the claims 15-18 and corresponding passages in the description on page 10, lines 6-26 as the figures 8-12 do not enable the reader to clearly understand the related technical features.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2009/050778

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 15-18
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14, 19-20

LED lamp comprising LEDs angularly mounted on a support

2. claims: 21-27

method to optimise the design of a LED lamp by using many parameters and by calculating in particular the number of light sources

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2009/050778

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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