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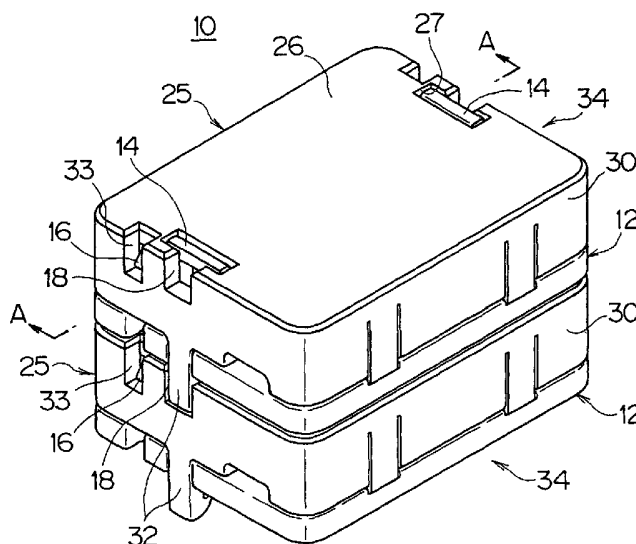
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[Continued on next page]

(54) Title: LED ILLUMINATION DEVICE



(57) Abstract: An LED illumination device includes LED lamp modules 34 coupled in a vertical direction. Each of said LED lamp modules 34 includes a base 12, a bus bar circuit 35 formed on the base 12, and a cover 25 connected to the base 12 to cover the bus bar circuit 35. A locking frame 14 (coupling portion) to be coupled with the upper LED lamp module 34 is formed on said base 12. A locking arm 32 (mating coupling portion) to be coupled with said locking frame 14 on the base 12 of the lower LED lamp module 34 is formed on said cover 25. Further, a guiding groove 18, into which said locking arm 32 is inserted, is formed on said base 12 near the locking frame 14, and a guiding hole 27, into which said locking frame 14 is inserted, is formed on the cover 25 near the locking arm 32.

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SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
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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.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP2004/008412

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H05K5/00 B60Q3/00 B60Q1/26

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)

IPC 7 B60Q H05K F21V F21K F21S H01R H01L H05B H02G B60R

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 672 000 A (LIN TAYEH) 30 September 1997 (1997-09-30)	1,2,5-9
Y	column 1, line 24 - column 4, line 14 figures 1,3-5,7,8	10,11
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Further documents are listed in the continuation of box C.

Patent family members are listed in 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

13 January 2005

Date of mailing of the international search report

02.02.2005

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP2004/008412

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 422 716 B2 (HENRICI DIETER ET AL) 23 July 2002 (2002-07-23) column 1, line 5 - column 2, line 50 column 3, line 6 - column 4, line 6 figures 1-7	1,2
X	US 6 017 241 A (KOMAI NEIL M) 25 January 2000 (2000-01-25) abstract; figures 1-10 column 1, lines 5,6,58-67 column 2 column 2, line 1 - line 10 column 3, line 1 - column 4, line 39	6-8
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Y	paragraphs '0001!', '0008!', '0009!', '0016!; figure 2 claim 5	15
Y	EP 1 289 341 A (HELLA KG HUECK & CO) 5 March 2003 (2003-03-05) abstract; figures 1,2 paragraphs '0001!', '0016!', '0021!', '0022!	15
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X	US 5 660 461 A (IGNATIUS RONALD W ET AL) 26 August 1997 (1997-08-26) abstract; figures 2-8 column 1, line 51 - column 2, line 3 column 2, line 66 - column 6, line 39	1
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/008412

Box 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.:
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:

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 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 all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers 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.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP2004/008412

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