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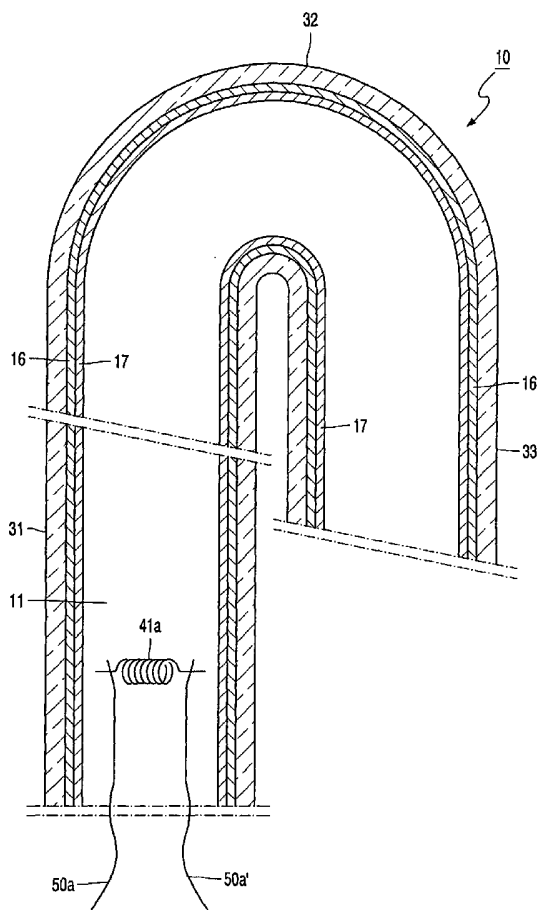
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[Continued on next page]

(54) Title: FLUORESCENT LAMP AND METHOD OF MANUFACTURING



(57) Abstract: A low-pressure mercury vapor discharge lamp is provided with a light-transmitting discharge vessel (10), enclosing, in a gastight manner, a discharge space (11) provided with a filling of mercury and a rare gas. The discharge vessel (10) comprises means (41A) for maintaining a discharge in the discharge space (11). At least a portion of an inner wall of the discharge vessel (10) is provided with a translucent layer (16), which according to the invention has a thickness in the range from 1 to 50 μm and comprises an alkaline earth borate. Starting materials for the translucent layer (16) are nano-particles of calcium strontium, and/or barium borate, enabling the production of such thick translucent layers. Preferably, the discharge vessel (10) is made from a sodium-rich or a soda lime glass with a glass composition comprising the following essential constituents: 60 to 80% SiO₂ and 10 to 20% Na₂O by weight.

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Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
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GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/02399

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H01J61/35 H01J61/26 H01J61/72

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 H01J

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, PAJ, 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	US 5 801 483 A (SAKAKIABRA YUICHI ET AL) 1 September 1998 (1998-09-01) column 3, line 23 - line 52	1-5,8
Y	column 5, line 40 - column 6, line 53; figure 7; table 1	6,7,9,10
X	----- EP 0 448 170 A (PHILIPS NV) 25 September 1991 (1991-09-25) column 3, line 46 - column 4, line 27; figure 3	1-5,8
Y	----- WO 01/056350 A (KONINKL PHILIPS ELECTRONICS NV) 9 August 2001 (2001-08-09) cited in the application abstract page 5, line 29 - page 6, line 8 page 6, line 22 - page 7, line 22; figures 1A,1B	6,7,9,10
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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
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- "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
- "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

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 03/02399

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

1-10

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- 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: 1-10

A low-pressure mercury-vapor discharge lamp comprising a light-transmitting discharge vessel, the discharge vessel enclosing, in a gastight manner, a discharge space provided with a filling of mercury and a rare gas, the discharge vessel comprising means for maintaining a discharge in the discharge space, while at least a portion of an inner wall of the discharge vessel is provided with a translucent layer, wherein the translucent layer comprises an alkaline earth borate, and

the thickness of the translucent layer is in a range from 1 to 50 μm .

2. claims: 11-13

Method of manufacturing a fluorescent lamp, wherein a light-transmitting discharge vessel is provided which encloses, in a gastight manner, a discharge space provided with a filling of mercury and a rare gas, the discharge vessel is provided with means for maintaining a discharge in the discharge space, and at least a portion of an inner wall of the discharge vessel is provided with a translucent layer, wherein alkaline earth borate particles are used to form the translucent layer, and

the size of the calcium, strontium, and/or barium borate particles is in a range from 0.1 to 1 μm .

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 03/02399

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PAN F ET AL: "Growth, characterization and nonlinear optical properties of SrB4O7 crystals"</p> <p>JOURNAL OF CRYSTAL GROWTH, NORTH-HOLLAND PUBLISHING CO. AMSTERDAM, NL, vol. 241, no. 1-2, May 2002 (2002-05), pages 108-114, XP004358324</p> <p>ISSN: 0022-0248</p> <p>page 110; table 1</p> <p style="text-align: center;">-----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/02399

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
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			DE 69106911 T2	17-08-1995
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