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- **Preston, Barry,**
The Arch House
Melton Mowbray
Leicestershire LE14 2TE (GB)
- **Vulliamy, Michael Justin**
Leicestershire LE24 2DD (GB)
- **Howe, Stephen Harold**
Leicester LE67 9QJ (GB)

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(71) Applicant: **GENERAL ELECTRIC COMPANY**
Schenectady, NY 12345 (US)

(74) Representative: **Goode, Ian Roy**
London Patent Operation,
General Electric International Inc.,
15 John Adam Street
London WC2N 6LU (GB)

(72) Inventors:
• **Girach, Mahomed Hanif**
Leicester LE2 1LU (GB)

(54) **Short arc high intensity mercury discharge lamp**

(57) A high pressure arc discharge lamp apparatus comprising a lamp (40) and an operating system (42, 44, 46) therefor. The lamp comprises an envelope forming a discharge chamber which contains a dose of mercury and a pair of electrodes with their tips spaced apart from one another to define an arc gap. An operating system for the lamp includes means for acting on the electrodes

to prevent a mercury dose globule from forming between the electrode tips on shutdown of the lamp. The means for acting on the electrodes may comprise means (42, 46) for smoothly reducing the lamp voltage upon lamp shutdown; or means (42, 44, 46) for briefly re-igniting the arc one or more times following shutdown; or means for vibrating the lamp after shutdown.

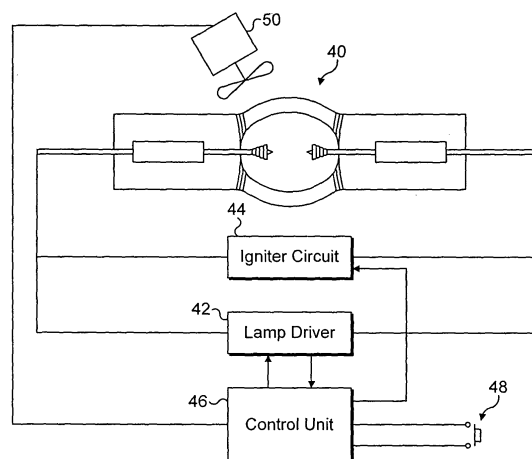


FIG. 3



EUROPEAN SEARCH REPORT

Application Number
EP 03 25 6860

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2002/135324 A1 (FUJII TOSHITAKA ET AL) 26 September 2002 (2002-09-26) * abstract * * paragraph [0002] - paragraph [0005] * * paragraph [0008] - paragraph [0017] * * paragraph [0030] - paragraph [0036] * * figures * * claims 1-4 *	1-6	INV. H01J61/86 H01J61/54 H01J61/20 H05B41/292 H05B37/02 H01J61/52 H01J61/82
X	DE 100 28 657 A1 (HELLA KG HUECK & CO) 13 December 2001 (2001-12-13) * abstract * * paragraph [0001] - paragraph [0013] * * figure 1 * * claims 1-4 *	1-5	
A	EP 1 150 336 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD) 31 October 2001 (2001-10-31) * paragraph [0019] - paragraph [0023] * * paragraph [0029] - paragraph [0030] *	2-4	
A	EP 0 917 180 A (MATSUSHITA ELECTRONICS CORPORATION; MATSUSHITA ELECTRIC INDUSTRIAL CO.) 19 May 1999 (1999-05-19) * paragraph [0023] - paragraph [0027] *	2-4	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 February 2009	Examiner Angloher, Godehard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.92 (P04C01)



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-6

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-6

subject-matter of independent claim 1:
high pressure discharge lamp containing Hg;

subject-matter of dependent claims 2 - 6:
means for phased reduction of lamp power on shutdown (claims 5, 6);
(and additional standard features concerning the electrodes and / or the filling of high pressure arc discharge lamps; claims 2 - 4)

2. claim: 7

high pressure discharge lamp according to independent claim 1;

subject-matter of dependent claim 7:
means to increase forced cooling of the envelope on shutdown

3. claims: 8,9

high pressure discharge lamp according to independent claim 1;

subject-matter of dependent claims 8, 9:
means for reheating the electrodes after shutdown

4. claim: 10

high pressure discharge lamp according to independent claim 1;

subject-matter of dependent claim 10:
means to vibrate the lamp during cooling after shutdown and/or before ignition

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 25 6860

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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19-02-2009

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