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(54) **High-pressure discharge lamp.**

(57) The invention relates to a high-pressure discharge lamp (2) provided with a discharge vessel (3) enclosed with intervening space by an outer bulb (30). The lamp is provided with an ignition circuit (10) which includes a voltage-dependent capacitor (8). According to the invention, the capacitor is mounted in a gas-filled glass capsule (11) in the lamp cap.

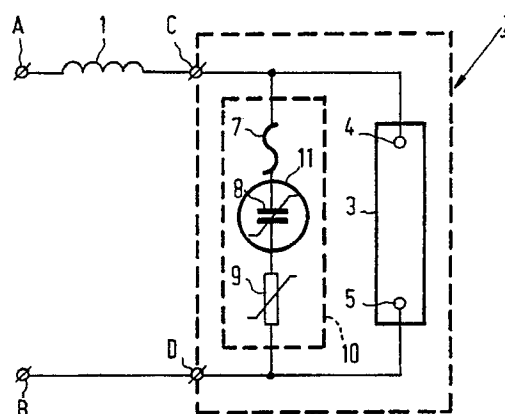


FIG.2

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HIGH-PRESSURE DISCHARGE LAMP.

The invention relates to a high-pressure discharge lamp provided with a discharge vessel, which vessel is enclosed with intervening space by an outer bulb having a lamp cap, as well as with an ignition circuit comprising a voltage-dependent capacitor.

A lamp of the type described in the opening paragraph is known from German Patent DE-C-3330266. In the known lamp, which is suitable for operation in series with a stabilizing ballast from an AC voltage supply source, the capacitor is positioned in the outer bulb and provided with a glass envelope to protect it against reduction and evaporation of parts of the capacitor. Practice has shown, however, that this entails major disadvantages. On the one hand, manufacture of a capacitor provided with such an envelope is very difficult, which makes the capacitor very expensive. On the other hand, the known lamp turns out to have a high degree of early failures owing to capacitor breakdown.

Mounting of the ignition circuit in the lamp, however, is very attractive since it renders the lamp much more widely applicable. The invention has for its object to provide a means by which the disadvantages described above are obviated, while the ignition circuit is still mounted in the lamp.

According to the invention, this object is achieved in a lamp of the type described in the opening paragraph in that the lamp is characterized in that the capacitor is mounted in a gas-filled gas-tight glass capsule in the lamp cap.

The advantage of this is that the capacitor is enclosed in a glass housing by means of a technology which has long been known and proved to be suitable, so that production is simple and reliable, which leads consequently to cost reduction in comparison with the known lamp. The gas pressure ensures that dissociation and/or evaporation of components from which the capacitor is built up is counteracted. Gas composition is so chosen that no reactions with capacitor components takes place under the prevailing conditions during lamp operation. Suitable gases are, for instance, rare gases, nitrogen, oxygen and sulphurhexafluoride. The gas filling may consist of a single gas, but combinations of gases are also possible.

Mounting in the lamp cap has the additional advantage that the capacitor is mounted at a comparatively great distance from the discharge vessel, so that heating of the capacitor in the operational state of the lamp remains restricted.

The use of a glass capsule has the further advantage that the lamp according to the invention can also be used in places where a more or less

aggressive atmosphere prevails without extra measures having to be taken.

A further improvement of the lamp can be achieved in that the gas-tight glass capsule is provided with a radiation reflecting layer. Thus it is achieved in a simple but effective manner that heating of the capacitor during lamp operation is considerably reduced. The radiation reflecting layer may be applied either externally or internally.

In a further embodiment of a lamp according to the invention, a voltage-dependent resistor is connected in series with the capacitor. The advantage of this is that on the one hand the moment at which an ignition voltage pulse is generated can be advantageously chosen by a suitable choice of the current-voltage characteristic of the resistor. On the other hand, the resistance character of the voltage-dependent resistor ensures that the level of the generated ignition voltage pulse is limited.

A further improvement is possible in providing the ignition circuit also with a fuse. By this it is achieved that even under unfavourable conditions, such as short-circuit in the capacitor, an overload of the stabilizing ballast by extremely high currents is prevented by melting of the fuse.

The invention will be explained in greater detail with reference to a drawing of an embodiment, in which

Fig. 1 is an elevation of a lamp, and

Fig. 2 is a diagrammatic representation of a circuit formed by the lamp of Fig. 1 together with a stabilizing ballast.

In Fig. 1, a lamp 2 according to the invention is provided with a discharge vessel 3, which is enclosed with intervening space by an outer bulb 30, which is provided with a lamp cap 31, lamp 2 also comprising an ignition circuit 10 (Fig. 2) mounted in the lamp cap 31, which circuit comprises a voltage-dependent capacitor 8. The voltage-dependent capacitor 8 is mounted in a gas-filled gas-tight glass capsule 11. The discharge vessel 3 is provided with lamp electrodes 4 and 5, between which a discharge takes place in the operational state of the lamp. Lamp electrode 4 is connected to a lamp contact C of lamp cap 31 via a rigid current conductor 40. Similarly, lamp electrode 5 is connected to a lamp contact D of lamp cap 31 via a rigid conductor 50.

The starting circuit 10 is also provided with a fuse 7 and a voltage-dependent resistor 9, both of which are also mounted in the lamp cap.

In Fig. 2, parts corresponding to those of Fig. 1 have corresponding reference numerals. A and B are connection terminals for connecting an AC voltage supply source. Terminal A is connected to

lamp contact C via a stabilizing ballast 1. Terminal B is connected to lamp contact D. The ignition circuit 10 formed by the circuit consisting of fuse 7, voltage-dependent capacitor 8 and voltage-dependent resistor 9, together with stabilizing ballast 1 generates in known manner ignition voltage pulses between the lamp contacts C and D and thus between the lamp electrodes 4 and 5.

The discharge vessel 3 may be provided with an external auxiliary electrode as a further ignition aid.

Claims

1. A high-pressure discharge lamp provided with a discharge vessel, which vessel is enclosed with intervening space by an outer bulb having a lamp cap, as well as with an ignition circuit comprising a voltage-dependent capacitor, characterized in that the capacitor is mounted in a gas-filled gas-tight glass capsule in the lamp cap.
2. A lamp as claimed in Claim 1, characterized in that the glass capsule is provided with a radiation reflecting layer.
3. A lamp as claimed in Claim 1 or 2, characterized in that a voltage-dependent resistor is connected in series with the capacitor.

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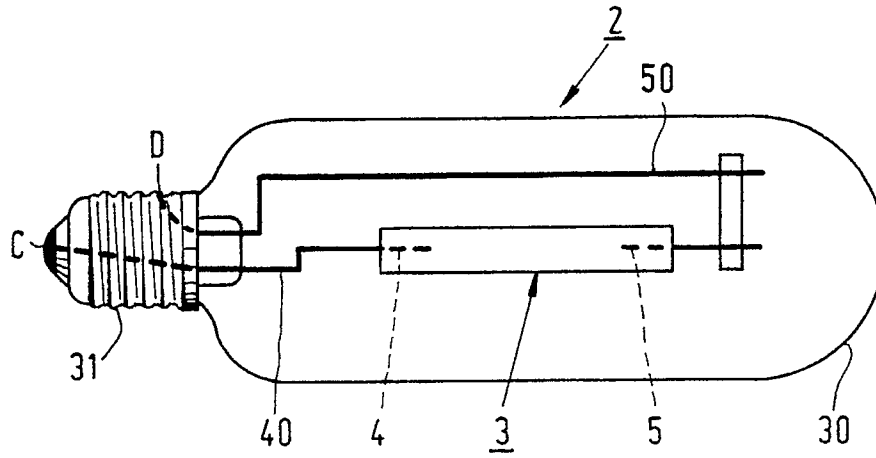


FIG. 1

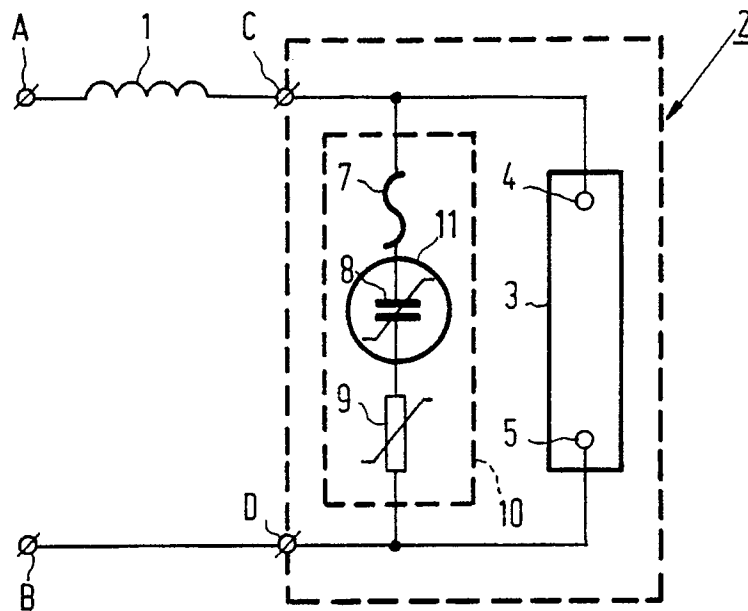


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 3184

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)		
A	US-A-3 629 647 (GEC) * column 1, lines 44 - 47 ** column 2, lines 12 - 50 @ column 3, lines 2 - 12 @ column 3, lines 22 - 26; figures 1, 2 * - - -	1	H 01 J 61/56		
A	US-A-4 520 294 (IWASAKI ELECTRIC) * column 3, line 45 - column 4, line 47; figure 12 * - - - - -	1			
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)		
			H 01 J 61/00		
The present search report has been drawn up for all claims					
Place of search The Hague		Date of completion of search 07 March 91	Examiner ROWLES K.E.G.		
<table border="0"><tr><td>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</td><td>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</td></tr></table>				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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