

Aug. 2, 1966

H. PASCHEDAG

3,264,516

TUBULAR INCANDESCENT LAMP

Filed Oct. 17, 1962

FIG. 1.

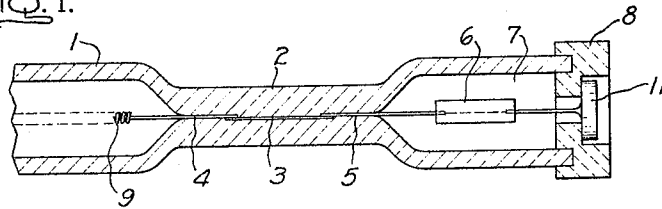
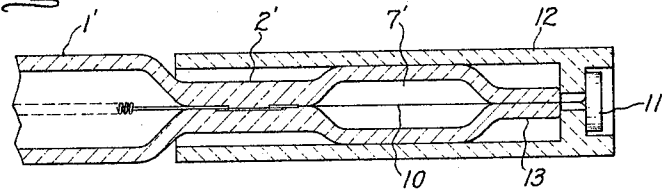


FIG. 2.



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TUBULAR INCANDESCENT LAMP

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Filed Oct. 17, 1962, Ser. No. 231,178

Claims priority, application Germany, Oct. 31, 1961,

P 18,979

4 Claims. (Cl. 315—74)

This invention relates to elongated tubular electric incandescent lamps having an envelope of hard glass or quartz and a halogen-containing gas filling which may consist of argon, krypton or xenon, or mixtures thereof, as well as iodine. The argon pressure may amount to about 600 mm. Hg at normal room temperature, and the partial pressure of the iodine, during operation of the lamp, may amount to about 8 to 10 mm. Hg. The gas filling, particularly when it is krypton or xenon, may be at higher pressures of, for example, several atmospheres in the cold lamp. The quartz envelope may have a diameter of about 7 to 20 mm., and a length of about 25 to 300 mm. A lamp of about 1000 watts capacity may have an envelope wall temperature of about 600° C.

At the end of their life such lamps tend to arc with resultant probable failure of the seal and explosion of the lamp. It is an object of the invention to prevent such explosions by means of a novel built-in fuse arrangement.

Accordingly, in accordance with one aspect of the invention, in such a tubular electric incandescent lamp with halogen-containing gas filling, the usual seal is formed toward the middle of the envelope and not at its end whereby there is formed a chamber in which a safety fuse is located. This chamber may be closed by a suitable base member mounted on the open end of the tube. When desired, the open tube end may be sealed or pinched off.

Further features and advantages will appear from the following detailed description and from the drawing wherein:

FIGS. 1 and 2 are side views, in section, of one end of each of two lamps embodying the invention.

Referring to FIG. 1 of the drawing, the lamp comprises a tubular envelope 1 of hard glass or quartz having adjacent each end thereof a seal 2 in which is hermetically sealed a conductor 3 which may be a thin foil. The seal 2 is formed by heating the envelope at 2 and pinching it to embed therein the seal wire 3 and adjacent portions of inner and outer lead wires 4 and 5. The said seal 2 is spaced from the end of the envelope to thereby form a chamber 7 within which is located a cartridge fuse 6 which is interposed in the outer lead wire 5. The chamber 7 may be closed by a base member 8 which carries a recessed contact 11 connected to the outer lead wire 5.

The filament 9 is in the form of a single coil or a multiple coil, more particularly a coiled coil or triple coil, and is connected at its end to the respective inner lead wires 4. The said filament 9 consists of tungsten wire when the gas filling contains iodine. The filament 9 is so rated that the envelope wall attains a temperature of 250 to 800° C.

In one embodiment, by way of example, the lamp is rated at an input of 1000 watts and is operated on a line voltage of 220 volts and has the following specifications: A quartz envelope 180 mm. long and 10 mm. outside diameter; a gas filling of argon at 600 mm. Hg pressure; a halogen consisting of iodine at a pressure of 10 mm. Hg during operation; envelope wall temperature of about 600° C.; and a fuse chamber about 20 mm. long.

In another embodiment shown in FIG. 2, the fuse chamber 7' is formed by an end portion of the glass envelope 1' behind seal 2' of reduced diameter, and the

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envelope end is sealed or pinched off at 13. Instead of a cartridge fuse as shown in FIG. 1, there is provided as the fuse a current inlead 10 in the form of a wire or foil. One end of the current inlead 10 is connected with a recessed contact 11' in a base shell 12 which encloses the fuse chamber 7' and the seal 2'. The fuse chamber may, if desired, be exhausted or filled with gas.

In each of the embodiments shown in FIGS. 1 and 2, the opposite end of the lamp (not shown) may be the same as shown in FIGS. 1 and 2 or it may terminate at the seal 2 or 2'.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A halogen-containing tubular incandescent lamp comprising a tubular envelope of light-transmitting vitreous material closed by a seal portion adjacent each end thereof, lead-in conductors extending through respective said seal portions, a filament extending longitudinally within said envelope and electrically connected at its ends to respective said lead-in conductors, the end of at least one said seal portion being spaced inwardly from the proximate end of the envelope and defining thereat a chamber which is an integral unitary extension of said envelope, and a fuse in said chamber connected to the adjacent lead-in conductor, and terminal means at the said proximate end of the envelope carrying a contact member electrically connected to said fuse.

2. A halogen-containing tubular incandescent lamp comprising a tubular envelope of light-transmitting vitreous material closed by a seal portion adjacent each end thereof, lead-in conductors extending through respective said seal portions, a filament extending longitudinally within said envelope and electrically connected at its ends to respective said lead-in conductors, the end of at least one said seal portion being spaced inwardly from the proximate end of the envelope and defining thereat a chamber which is an integral unitary extension of said envelope, a base member mounted on the said proximate end of the envelope and closing said chamber and carrying a contact member, and a fuse in said chamber connected between the adjacent lead-in conductor and said contact member.

3. A halogen-containing tubular incandescent lamp comprising a tubular envelope of light-transmitting vitreous material closed by a seal portion adjacent each end thereof, lead-in conductors extending through respective said seal portions, a filament extending longitudinally within said envelope and electrically connected at its ends to respective said lead-in conductors, the end of at least one said seal portion being spaced inwardly from the proximate end of the envelope and defining thereat a chamber which is an integral unitary extension of said envelope, and a fuse in said chamber connected to the adjacent lead-in conductor, the extremity of said proximate end of the envelope being sealed and thereby closing off said chamber, and conductor means extending from said fuse through the sealed extremity of said proximate end of the envelope to the exterior thereof.

4. A halogen-containing tubular incandescent lamp comprising a tubular envelope of light-transmitting vitreous material closed by a seal portion adjacent each end thereof, lead-in conductors extending through respective said seal portions, a filament extending longitudinally within said envelope and electrically connected at its ends to respective said lead-in conductors, the end of at least one said seal portion being spaced inwardly from the proximate end of the envelope and defining thereat a chamber which is an integral unitary extension of said envelope, the extremity of said proximate end of the envelope being sealed and thereby closing off said chamber, a base member mounted on and enclosing said chamber and carrying a contact, and a fuse in said chamber

electrically connected between the adjacent lead-in conductor and said contact by way of conductor means extending through the sealed extremity of said proximate end of the envelope.

2,147,584	2/1939	Thomas	-----	315—74
2,494,917	1/1950	Van Liempt	-----	315—74 X
2,883,571	4/1959	Fridrich et al.	-----	313—222

References Cited by the Examiner

UNITED STATES PATENTS

1,286,514	12/1918	Bobe	-----	313—274
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