

[54] PHOTOFLASH LAMP

3,602,619 10/1972 Van dor Tas et al. 431/95

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[22] Filed: Nov. 10, 1971

[21] Appl. No.: 197,395

[57] ABSTRACT

[30] Foreign Application Priority Data

Nov. 27, 1970 Germany P 20 58 441.2

A photoflash lamp having an envelope includes a finely divided actinically combustible material and two current conducting wires which support an ignition mass within the envelope. The mass, which is ignitable by passing a current through it, consists of an intimate mixture of a composition which burns upon heating and a powder of a satisfactorily conducting metal. The mass has a resistance in the order of $10^4\Omega$. In one form of the invention, the mass includes copper, silver or graphite as a satisfactorily conducting material.

[52] U.S. Cl. 431/95

[51] Int. Cl. F21k 5/02

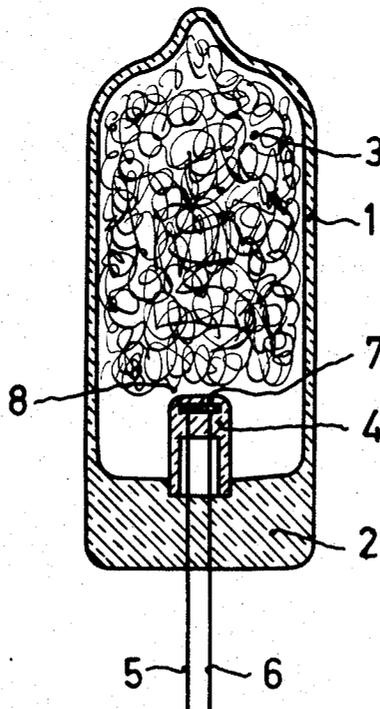
[58] Field of Search 431/95, 94

[56] References Cited

UNITED STATES PATENTS

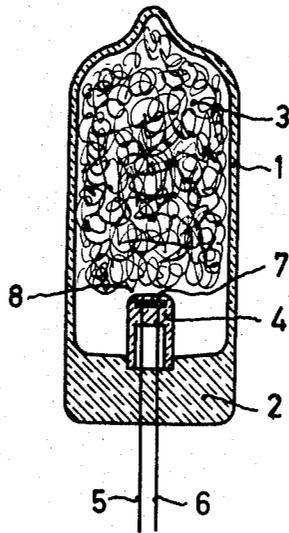
3,312,085 10/1972 Schilling et al. 431/95

1 Claim, 1 Drawing Figure



Patented Aug. 14, 1973

3,752,636



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PHOTOFLASH LAMP

The invention relates to a photoflash lamp provided with an envelope comprising a finely divided actinically combustible material and two current conducting wires which support an ignition mass within the envelope, which ignition mass can be ignited by passing a current through it.

Such a photoflash lamp is known from German patent specification 1,255,487. The composition of the ignition mass in this known lamp is chosen in such a manner that electrically it consists of a plurality of series and parallel arranged capacitors, or spark gaps and resistors. According to this patent specification a condition for the satisfactory operation is that the resistance of the ignition mass measured at a voltage of 20V must be $10^6\Omega$. The mass is ignited by a voltage pulse of approximately 100V or more. A drawback of this mass is that the combustion or non-combustion of the ignition mass and the time lapse between switching on the voltages and the instant of ignition is dependent on the rate at which the voltage increases when switched on.

The object of the present invention is to provide a photoflash lamp comprising an ignition mass in which this drawback does not occur or hardly occurs.

According to the invention a photoflash lamp with which this object is achieved is characterized in that the ignition mass consists of an intimate mixture of a composition which ignites upon heating and a powder of a satisfactorily conducting metal, the ignition mass having a resistance in the order of $10^4\Omega$.

The composition igniting upon heating may be the usual ignition mass for photoflash lamps which is ignited by passing an electric current through a filament on which or in the vicinity of which the ignition mass is present. A commonly used ignition mass consists of zirconium powder and potassium chlorate in an approximately stoichiometric ratio to which a slight quantity of a binder has been added.

An ignition mass suitable for use in the photoflash lamps according to the invention may consist of, for example, 1 part by volume of such a mixture of zirconium powder and potassium chlorate and 2 parts by volume of a powder of a satisfactorily conducting metal. Copper or silver or graphite may be used as satisfactorily conducting metals.

An ignition mass of this composition is found to ignite immediately when a voltage of several volts is applied, and in its turn it is capable of igniting the com-

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bustible material in the flash lamp.

The flash lamp according to the invention has the advantage that heat is produced already immediately after the voltage is switched on. In the previously described known flash lamp this is only the case after a conducting path for the current in the ignition mass has been formed by means of a series of electrical breakdowns.

In order that the invention may be readily carried into effect, an embodiment thereof will now be described in detail, by way of example, with reference to the accompanying diagrammatic drawing, which comprises a single FIGURE.

The photoflash lamp according to the invention has a glass envelope 1 and a pinch 2. An actinically combustible material 3 and the stem 4 are present within the envelope 1. This stem comprises two current conductors 5 and 6 and a glass body which may be obtained, for example, by sealing a glass bead together with the current conductors 5 and 6 in a glass tube in such a manner that a cavity 7 is formed in which the ignition mass 8 is provided.

The ignition mass 8 consists of a mixture of zirconium powder and potassium chlorate in a stoichiometric ratio and silver powder in a volume ratio of 1 part by volume of stoichiometric mixture and 2 parts by volume of silver powder. The mass was obtained by mixing the stoichiometric mixture with a product commercially known as "Leitsilber." The binder present in the "Leitsilber" also serves as a binder for the ignition mass.

"Leitsilber" is the commercial name of a product which is marketed by the firm of Degussa in the form of a bright lacquer which contains from 20 to 30 percent by volume of plate-like silver particles and the binder is assumed to be nitrocellulose.

What is claimed is:

1. A photoflash lamp provided with an envelope comprising a finely divided actinically combustible material and two current conducting wires which support an ignition mass within the envelope, said mass being ignitable by passing a current through it, said mass consisting of an intimate mixture of a composition which burns upon heating and a powder of a satisfactory conducting metal chosen from the group consisting of copper, silver and graphite said mass having a resistance in the order of $10^4\Omega$.

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