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FLASH LAMP

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Fig 1

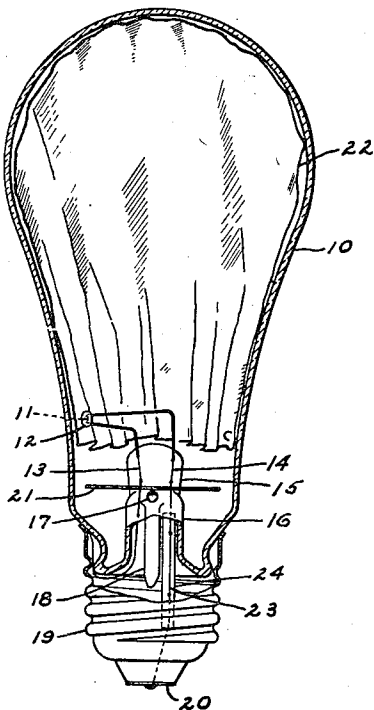


Fig 3

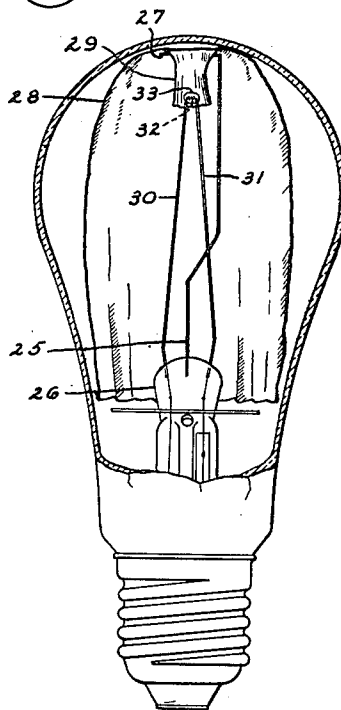
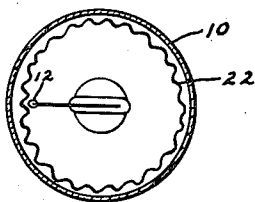


Fig 2



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FLASH LAMP

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6 Claims. (Cl. 67-31)

My invention relates to flash lamps which are used for photographic purposes and more particularly to the type of flash lamps comprising a transparent bulb filled with a gaseous oxygenic substance and containing a combustible metal foil which when ignited emits a flash of light of high intensity.

The foil in such lamps is crumpled into a wad which loosely fills the bulb. A disadvantage which sometimes occurs when the foil is arranged in this manner is that the light output of different lamps of the same type varies. This may be due to the fact that the combustion begins at the inside of the crumpled foil and this light is obstructed by the surrounding foil.

According to my invention this disadvantage is obviated by imparting to the foil a regular shape which reduces the internal light absorption to a minimum. The foil may be in the shape of a hollow body which is disposed substantially symmetrically about the longitudinal axis of the bulb. The said hollow body of foil may be disposed to a great extent in contact with the wall of the bulb. The light intensity will be substantially uniform in all lamps made in this manner and the light distribution will also be good because of the presence of an equal amount of foil in every direction of radiation. Furthermore, all of the light emitted by the foil is utilized so that the quantity of foil heretofore used may be reduced and consequently, smaller bulbs may also be used.

Further features and advantages of my invention will appear from the following detailed description of species thereof.

In the drawing, Fig. 1 is an elevation, partly in section, of a flash lamp comprising my invention; Fig. 2 is a cross-sectional view thereof; and Fig. 3 is an elevation partly in section, of a modification.

Referring to Figs. 1 and 2, the lamp comprises a bulb 10 which contains a filling of oxygen, or an oxygen-gas mixture, or a gas that gives off oxygen. The lamp preferably includes electric ignition means comprising a short filament 11 having a covering 12 of a fulminating substance thereon. The said filament 11 is mounted on the ends of leading-in wires 13, 14, portions of which are sealed in the press portion 15 of a stem tube 16, the outer end of which is sealed to the neck of the bulb 10. The said bulb is evacuated and then filled with oxygen through an aperture 17 which communicates with an exhaust tube 18. The leading-in wires 13, 14 are connected to the shell 19 and the end contact 20 respectively, of the base. A disc 21 of material such as mica

may be disposed on the stem press 14 to prevent excessive heating of the base during the flash period.

The combustible foil 22, which may consist of a material such as aluminum or magnesium, is in the shape of a hollow body or mantle and is preferably disposed symmetrically about the longitudinal axis of the bulb 10. In the form shown in Fig. 1, the said body of foil lies as closely as possible against the inner wall of the bulb, i. e., it forms a lining in said bulb. The said hollow body of foil 22 is placed in the bulb prior to the sealing of the stem 16 thereto and is then pressed against the wall either by means of a suitable tool such as a padded spatula or by means of an air jet directed into the bulb. The leading-in wires 13, 14 are preferably bent laterally so as to bring the ignition filament 11 close to the edge of the foil body. When a current is passed through the said filament 11 the pellet 12 is caused to sputter and thereby ignite the edge of the foil body 22 which then burns upward to the top of the bulb.

A fuse 23 having a protective tube 24 disposed thereabout may be provided in the leading-in wire 14 to prevent blowing-out of a fuse in the current supply system in case of a short-circuit after the foil has been burned.

In the modified lamp shown in Fig. 3, one end of a longitudinally extending rod or support wire 25 is embedded in the stem press 26, while the opposite end thereof, at the tip of the bulb, terminates in a lateral ring 27. The said ring 27 supports a mantle or hood-shaped hollow foil body 28 which may be provided with a re-entrant portion 29 which is inserted inside of the said ring. The leading-in wires 30, 31 extend longitudinally upward so as to bring the filament 32 with its covering 33 of fulminating material within the re-entrant portion 29. The foil body 28 is therefore ignited at the tip end of the bulb and burns toward the base end. Although the said foil body 28 is adequately supported by the ring 27, it may be desirable in this case also to stretch or press it out against the wall of the bulb as in Fig. 1.

The hollow foil body may of course be supported in various ways in the bulb and the bulb and foil body may have different shapes than those illustrated.

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

1. A flash lamp comprising a transparent bulb filled with a gaseous oxygenic substance and containing a foil of oxidizable substance adapted to emit light upon combustion thereof, said foil be-

ing in the form of a hollow body having a comparatively smooth surface such that substantially all the light emitted outwardly from any portion of the foil is unobstructed by any other portion of said foil.

2. A flash lamp comprising a transparent bulb filled with a gaseous oxygenic substance and containing a foil of oxidizable substance adapted to emit light upon combustion thereof, said foil being in the form of a hollow body having a comparatively smooth surface such that substantially all the light emitted outwardly from any portion of the foil is unobstructed by any other portion of said foil, and means for supporting said body of foil in said bulb.

3. A flash lamp comprising a transparent bulb filled with a gaseous oxygenic substance and containing a foil of oxidizable substance adapted to emit light upon combustion thereof, said foil being disposed in contact with the inner surface of said bulb so as to form a comparatively smooth lining thereon.

4. A flash lamp comprising a transparent bulb

filled with a gaseous oxygenic substance, the inner surface of said bulb being lined with an oxidizable substance adapted to emit light upon combustion thereof.

5. A flash lamp comprising a transparent bulb filled with a gaseous oxygenic substance, a stem sealed at one end to the neck of said bulb, a support rod mounted on the opposite end of said stem and extending longitudinally of said bulb, and a mantle-shaped foil body of oxidizable substance in said bulb supported by the end of said support rod.

6. A flash lamp comprising a transparent bulb filled with a gaseous oxygenic substance, a stem sealed at one end to the neck of said bulb, a support rod mounted on the opposite end of said stem and extending longitudinally of said bulb and terminating in a lateral ring portion, and a mantle-shaped foil body of oxidizable substance in said bulb supported by the said ring portion at the end of said support rod.

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