Dec. 17, 1935. M. IGARI 2,024,225

FLASH LIGHT LAMP

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Fig. 1.

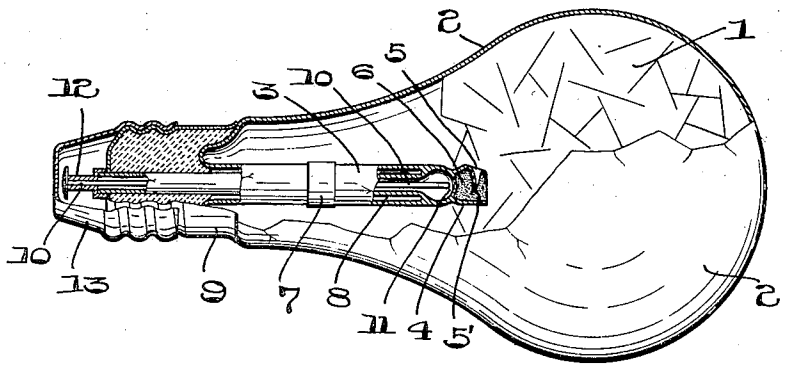


Fig. 2.

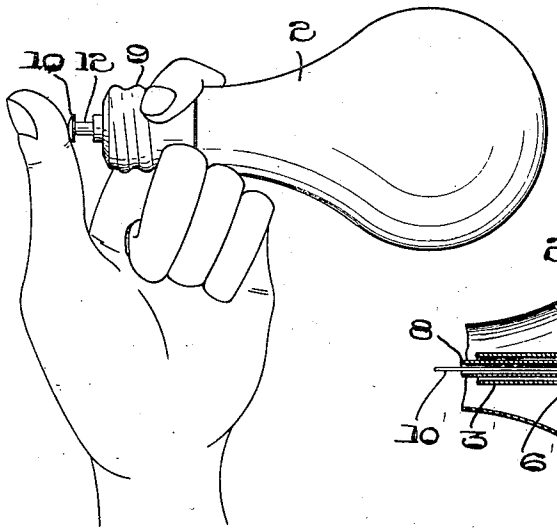
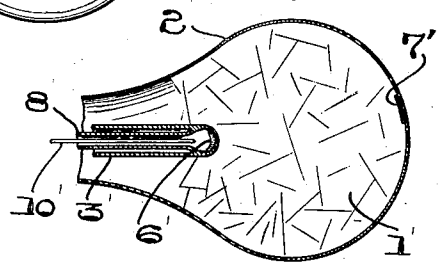


Fig. 3.



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FLASH LIGHT LAMP

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8 Claims. (Cl. 67—33)

This invention relates to a flash light lamp, particularly to a photo-flash light bulb which can be flashed mechanically without using any electric source. In the known flash lamp, foils of oxidizable substance are sealed in a gas-tight transparent bulb filled with oxygen under the pressure lower than atmospheric pressure and are disposed in the bulb in such a position as to be within the effective range of an electric igniter. Now, the flash lamp according to this invention differs from it in respect of using no electric source or accessories for ignition and consequently being able to be flashed at any time and place.

The flash light lamp generally explodes violently, when ignited, on account of air entering the bulb by some cause or other. The prevention of such explosion by indicating the intrusion of air is known with regard to the flash light lamp containing flash light powder, but no preventing means has been found yet about the flash light lamp having oxidizable foils. According to this invention, the bulb is charged with a detecting element which changes it color when it meets with the atmosphere, so that the intrusion of air into the bulb can be discovered previously and consequently the explosion at the time of flashing can be prevented.

The accompanying drawing shows an example of carrying out this invention into practice.

Fig. 1 is a front view partly broken, of the flash light bulb of this invention.

Fig. 2 is a view of the flash light bulb of this invention about to be flashed.

Fig. 3 is a front view partly cut off, of a modification of the flash light bulb of this invention.

In Fig. 1, inflammable foils or leaves 1 such as of aluminum are sealed up in a transparent glass bulb 2 together with oxygen under the pressure below atmospheric pressure. At the outer end of a stem 3 elongated from the neck of the glass bulb 2 is formed a cup 4 one side wall 5 of which is depressed in such a manner that its end 5' extends slightly beyond the central axis of the stem 3. The end of the inner tube 8, which is joined with the inner surface of the stem 3 at the outer end thereof, and which has the same central axis as the stem, is elongated and passes through the base 9. A rod 10 is inserted in said inner tube 8 in such a way that its end reaches the neighborhood of the inner surface of the outer end of the stem 3 as at 11, and it is supported in such position by a rubber ring 12 fitted on the exposed ends of the inner tube 8 and said rod 10. The base 9 has a cap 13 screwed thereto. The rod 10 breaks the top wall 11 and ignites the fulminating substance 6 on the inside wall 5 of the cup 4. The fulminating substance 6 may be of any kind, if it can be ignited by mechanical means, for instance, a substance composed of an inflammable substance such as phosphorous or antimony sulphide and an oxidizing agent such as potassium chlorate or nitrate. It may be put in any position in the bulb where the rod 10 can do its work effectively. For example, it can be disposed on either the inner or outer surface of the outer end of the stem 3. Needless to say, the cup 4 is not necessary when the substance 6 is disposed on the inner surface of the outer end of the stem 3 as shown in Fig. 3.

A detecting element 7 which indicates the intrusion of air by changing its color can be easily made from any substance such as the paper dipped into the indicating reagent and dried. It may occupy any position in the bulb. The reagent can be applied directly about the stem 3 or as shown at 7' in Fig. 3, to any suitable part of the interior of the bulb with the same effect. The indicating reagent may be any chemical which changes its color by absorbing the moisture in the air, such as any salts of cobalt.

To flash my lamp, the cap 13 is removed as shown in Fig. 2 and the exposed end of the rod 10 is pressed and then the rod which slides along the inside wall of the inner tube 8 will destroy the end wall 11 of the stem 3 and strike the wall surface of the depressed part 5' of the cup 4, thus igniting the fulminating composition 6 with which it is coated and consequently burn the inflammable oxidizable foils.

In the form of bulb 1' shown in Fig. 3, having the inner surface of the end wall of the stem 3' coated with a fulminating composition 6', the rod 10' moves through the inner tube 8' of the stem and strikes the inner surface of the end wall simultaneously destroying the same and igniting the composition 6'. Then, the flames are sucked into the bulb 2' on account of the pressure in the latter being lower than atmospheric pressure causing the inflammable substances to catch fire and present a great burning phenomenon.

The light bulb of this invention is ignited so quickly that it is almost instantaneous with the striking of the rod against the inner end surface coated with a suitable fulminating composition, while the ignition produces a strong flash without a moment's delay. Therefore, it can be utilized in photography or long-distance signalling at night.

I claim:

1. A flash light lamp including a sealed glass

bulb containing oxygen, a filling of inflammable oxidizable foils loosely arranged within the bulb, a mechanical igniting device partly enclosed within the bulb and disposed within the filling, and an element located inside of the bulb to indicate the introduction of air into said bulb by changing its color upon contact with air.

2. A flash light lamp including a transparent bulb containing oxygen of lower pressure than atmospheric pressure, a closure base for sealing the neck of the bulb, a filling of inflammable foils disposed within the bulb, a tubular stem continuing from the neck of the bulb and projecting centrally into the bulb and having a closed outer end wall, a fulminating substance at the closed end of the stem, a tube arranged within the stem and connected at its outer end to the stem, and a rod slidable in the inner tube for breaking the closed wall of the stem to ignite the fulminating substance.

3. A flash light lamp as claimed in claim 2, wherein the fulminating substance is applied directly to the inner surface of the closed end of the stem so as to be ignited by the rod.

4. A flash light lamp as claimed in claim 2, wherein a cup is formed integral and exteriorly of the closed outer end of the stem and contains the fulminating substance which is ignited upon the rod breaking the closed end of the stem.

5. A flash light lamp as claimed in claim 2, wherein a cup is formed integral and exteriorly of the closed outer end of the stem and contains the fulminating substance which is ignited upon the rod breaking the closed end of the stem, and a member in the cup the inner surface of which is adapted to be struck by the rod immediately following the breaking of the closed end of the stem.

6. A flash light lamp including a transparent bulb containing oxygen of lower pressure than atmospheric pressure, a closure base for sealing the neck of the bulb, a filling of inflammable foils disposed within the bulb, a tubular stem continuing from the neck of the bulb and projecting centrally into the bulb and having a closed outer end wall, a striking and igniting member in the stem, and a fulminating substance at the closed end of the stem.

7. A flash light lamp as claimed in claim 6, wherein a cup is formed exteriorly of the closed outer end of the stem and contains the fulminating substance which is ignited by friction created upon being contacted by the striking member.

8. A flash light lamp as claimed in claim 1, wherein the detecting element consists of a piece of paper dipped into salts of cobalt and dried.

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