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(54) **FLASH LAMP**

(54) **LAMPE A JET DE FLAMME**

This invention relates to certain new and useful improvements in that class of devices which are technically known as "flash-lamps" and in which a charge of flash-powder is quickly ignited to produce a powerful light for flash photography; and the invention consists of the parts and the constructions and combinations of parts forming the improved flash-lamp, which I shall hereinafter describe and claim.

The object of this invention is to so construct a flash-lamp that it may occupy but a small space and may be readily carried in the pocket loaded for instant use, so that an intense flash-light may be developed quickly and unexpectedly within the range of the lens of a camera to secure a distinct photographic image of a person or object at night or on cloudy days or within dark places where the natural light is not strong enough to produce satisfactory results. With a device of the character shown and described the charge of flash-powder is always ready for instant use, and persons or objects many feet distant may be brought within a field of intense light and a clear photographic picture of the same secured.

In the accompanying drawings, in which similar letters of reference indicate corresponding parts,

Fig.1 is a perspective view of my improved flash-lamp.

Fig.2 is a longitudinal sectional view of the same on the line x x of Fig.1.

Fig.3 is an enlarged detached view of the match-holder.

Figs.4 and 5 are enlarged details to be referred to.

The bowl A of my lamp is of sufficient capacity to contain a full charge of any suitable flash-powder which will produce a powerful actinic or other intense light for some distance from the operator, said bowl preferably flaring outwardly so as to scatter and diverge the atoms of powder within an area or field

sufficient to obtain the best results. The upper or open end of the bowl is provided with a hinged lid or cover h which normally closes the entrance to the bowl and confines the charge of powder in place, this lid also serving, when thrown open by the explosion of powder, as a deflector for throwing the powder forward, and it may be polished or otherwise made with a reflecting surface to concentrate the light-rays. The lower portion of the bowl is contracted, and substantially in line with this portion is a device, to be hereinafter described, which ignites the powder at the bottom and explodes it. This results in the remaining and superposed portion of the flash-powder being ejected from the bowl and diffused in the outer air, the lid of the bowl being thrown open by the explosive force and the atoms of powder ignited in the air after leaving the bowl, as is common in devices of this character. The lower portion of the bowl is formed or provided with an internally-threaded nipple b into which is screwed a hollow stem g having at some appropriate point in its length a finger-piece c which may be of any suitable character. Instead of making the stem separate from the bowl, the bowl and stem may be made integral without departing from the spirit of my invention.

Within the stem is fitted to slide a match-holder consisting of a tube d, slitted longitudinally on opposite sides to form elastic members adapted to receive and frictionally grasp an ordinary match e, the head-end of the match projecting beyond the inner end of the holder, as shown in Fig. 2, and the outer end of the holder having a head or thumb-piece f against which the thumb is pressed to cause the match-holder to be forced inward and the head of the match to contact with a means for igniting it at a point where the spark or flame therefrom will readily ignite the powder in the bottom of the bowl.

The match may be ignited by simply forcing the head there

past a roughened surface or points in the inner end of the stem; but the construction I prefer to use is to secure in or to the inner end of the stem one or more steel blades G, arranged in the path of movement of the match-head. If small matches are used, two blades may be employed, crossing each other, as shown in Fig. 4, and if larger matches are used a single blade, as shown in Fig. 5, will be sufficient for the purpose.

Because of the different diameters of matches and to provide a positive means for preventing the matches sticking in the stem and not withdrawing with the holder after ignition, I prefer to attach to the exterior of the match-holder a bowed or curved spring-plate E, having one or more spurs or points F projecting inwardly and adapted to pass through an opening in the side of the holder, whereby when the match is inserted in said holder and the latter forced into the stem H, the inner wall of the stem straightens out the spring-plate and forces the spur or point F through its opening and into the match to so securely hold the latter that when the charge of powder is exploded the match-holder and its contained burned match may be readily withdrawn from the stem and the used match removed. The spring E also exerts sufficient friction against the inside of the stem to prevent the accidental withdrawal of the match-holder from the stem.

In addition to these features I also prefer to use a means for preventing the accidental discharge of the match when the flash-lamp is carried in the pocket or is subjected to accidental jar. Some form of safety appliance is used, and the one I prefer to adopt is a spring-plate G, secured to the outer portion of the match-holder and having its inner end adapted to contact with the end of the stem, so as to limit the extent

of insertion of the holder in the stem under ordinary conditions; but when it is desired to use the device for flash-lighting purposes a strong pressure on the outer end of the match-holder results in the inner end of the spring being lifted out of its contact with the end of the stem, when the holder is quickly shot forward, igniting the match and exploding the flash-powder, as before described.

A device of this character occupies but a small space, is always ready for instant use, and gives most satisfactory results. It is cheaply made, and to secure lightness and ornamental effects may be constructed of aluminum or other metals, especially such as do not readily tarnish.

Having thus fully set forth my invention, what I claim is:-

1. In a flash-lamp, a bowl to contain a charge of flash-powder, said bowl made shallow and flaring outwardly and having a movable lid or cover to confine the charge in place, in combination with a hollow stem rigid with said bowl, a movable holder therein and a match carried by the holder and adapted to ignite the powder from below.
2. In a flash-lamp, a bowl to contain a charge of explosive powder, a hollow stem for said bowl, a match and a movable holder therefor, and means for limiting the initial insertion of the holder within the stem whereby the holder is held against accidental movement.
3. In a flash-lamp, a bowl to contain the charge of flash-powder, said bowl flaring outwardly, having a hinged lid or cover and an integral threaded nipple, a hollow stem to engage said nipple, a match-holder slidable within said stem, and means carried by the stem and adapted to contact with and ignite a match carried by the holder.
4. In a flash-lamp, a bowl to contain a charge of flash-powder, said bowl flaring outwardly and provided with a lid or cover, a hollow stem fitted to the bowl having its inner end provided with one or more blades within or contiguous to the base of the bowl, a holder slidable within the stem and adapted to carry the head of a match into contact with said blade or blades, a finger-piece on the stem and a thumb-piece on the holder whereby the latter is operated.
5. A flash-lamp comprising a bowl to contain the flash-powder, a hollow stem for the bowl, a match-holder slidable within the stem, means for igniting the match contiguous to the bowl-chamber, and a spring or plate on the holder having a

spur or point to be forced through an opening in the holder so that it enters the match and thereby insures the burned match being withdrawn with the holder.

6. A flash-lamp comprising a bowl to contain the flash-powder, a hollow stem for the bowl, a slitted holder movable in the stem and provided with a spring-plate having a projecting spur or point, said plate being bowed or curved so that when the holder is inserted in the stem the plate is straightened out and the point or spur thereof is forced into the match, said plate frictionally holding the holder within the stem, and means for igniting the match contiguous to or within the bowl-chamber.

7. A flash-lamp comprising a bowl to contain flash-powder, a hollow stem for the bowl, a match-holder and means for igniting a match carried thereby, and a safety spring-plate on the holder adapted to contact with the stem to normally limit the insertion of the holder in the stem, said spring-plate yielding under pressure, to permit the holder to be shot forward to ignite the flash-powder.

8. An improved flash-lamp consisting of a shallow bowl flaring outwardly and provided with a hinged lid or cover and laterally-projecting nipple, a hollow stem to be fitted to said nipple and provided with a finger-piece, a slitted holder movable in the stem and adapted to contain a match, a bowed or curved spring on the holder having a spur or point to be pressed into the match to positively secure the latter to the holder, a blade or blades at the inner end of the stem and in the path of movement of the match-head, and a spring-plate on the holder for limiting the initial position of the same within the stem, said plate yielding under pressure to enable the

holder to be shot forward to ignite the match.



FLASH LAMP

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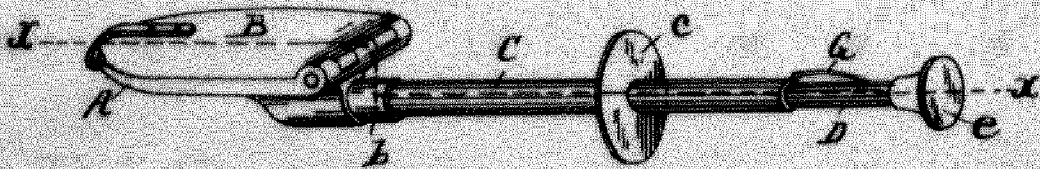


Fig. 1.

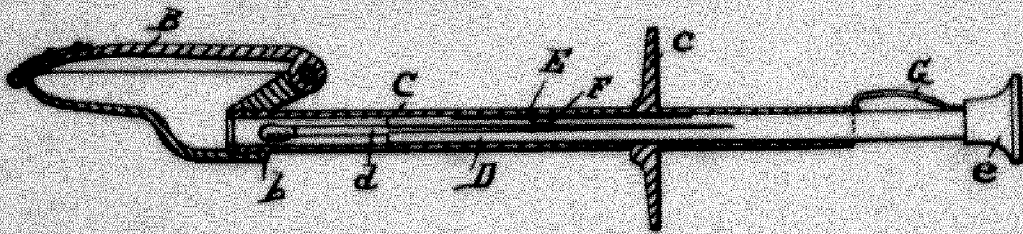


Fig. 2.

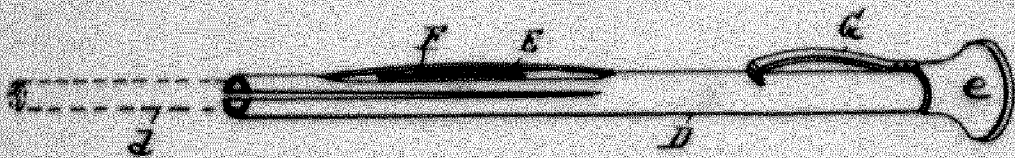


Fig. 3.

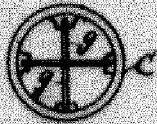


Fig. 4.

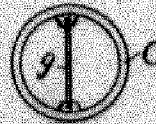


Fig. 5.

*Certified to be the Drawings referred to in the Specification  
herewith annexed. Detroit, Michigan.*

*Witnesses.  
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