Sept. 23, 1947. E. B. NOEL 2,427,736

MULTIPLE FLASH LAMP UNIT

Filed Nov. 1, 1943

Fig. 1.

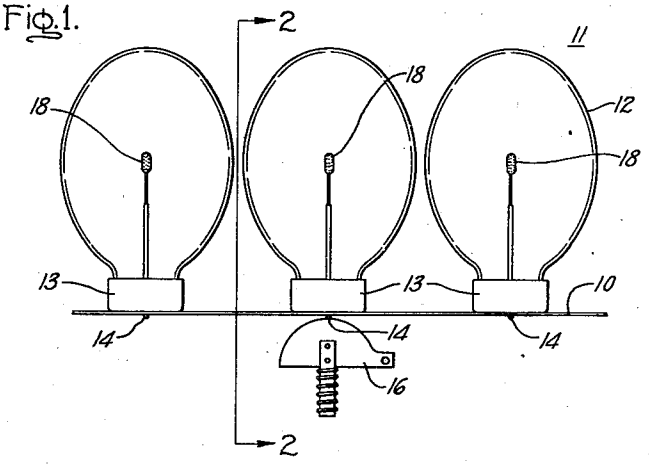
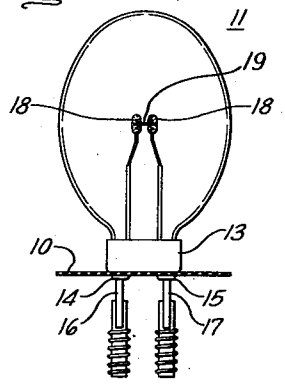


Fig. 2.



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Patented Sept. 23, 1947 2,427,736

UNITED STATES PATENT OFFICE

2,427,736

MULTIPLE FLASH LAMP UNIT

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Application November 1, 1943, Serial No. 508,495

2 Claims. (Cl. 67—31)

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My invention relates to lamps and more particularly to flash lamps comprising a combustible material and a supporter of combustion enclosed in a light transmitting bulb. The actinic light emitted by such lamps is useful for photographic purposes.

The principal object of my invention is to provide a multiflash lamp unit comprising a series of flash lamps permanently joined or secured to a strip or band. Another object of my invention is to provide a multiflash lamp unit comprising a series of flash lamps which unit is useful in conjunction with illuminating apparatus capable of igniting the lamps. Further objects of my invention will appear from the following detailed description thereof and from the appended claims.

In the drawing accompanying and forming part of this specification an embodiment of my invention is shown in which Fig. 1 is a side elevational view of my new multiflash lamp unit and Fig. 2 is a sectional view thereof along the line 2—2 of Fig. 1.

Referring to the drawing, the multiflash lamp unit comprises a strip 10 of electrically insulating material, such as heavy paper, an organic plastic, or the like, having a plurality of equally spaced flash lamps 11 permanently secured thereto. The flash lamps 11 comprise a light transmitting bulb 12 having a base 13 of electrically insulating material secured thereto. A pair of current leading-in wires 14 and 15 (Fig. 2) are attached to and pass through the lamp base. Said wires also pass through the strip 10 and, as shown in Fig. 2, are bent over the surface of the strip 10 facing away from the lamp to clamp the strip 10 against the base 13 to permanently fasten the lamp 11 to the strip 10. A bonding agent, such as glue, may be provided between the lamp bases 13 and the surface of strip 10. The exposed portion of the wires 14 and 15 constitute contacts for engagement with the conventional spring contacts 16 and 17 of a circuit comprising a source of electrical energy suitable for igniting the lamps. Relative movement of the strip 10 and the contacts 16 and 17 is effective for sequentially engaging the exposed portions of the wires 14 and 15 of the series of lamps 11 with the contacts 16 and 17. Ignition of the lamp connected across the contacts 16 and 17 is controlled in the conventional manner by a switch in the circuit including contacts 16 and 17. The operation of the switch may be controlled by conventional apparatus for synchronizing the ignition of the lamp with the opening of the camera shutter.

The strip 10 may be flexible so as to follow the curved surfaces of a support for the multiflash lamp unit when relative movement of the strip and said surfaces takes place. The strip 10 thus

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may be arranged to slide over such support surfaces or to follow the curved contours of such surfaces as a portion thereof engages therewith. An example of the latter arrangement is disclosed in the Noel and Seitz Patent 2,408,470 granted October 1, 1946, and assigned to the assignee of this application. This patent discloses and claims a multiflash lamp apparatus or device comprising a pair of spaced, flanged wheels for supporting a multiflash lamp unit of my invention. The unit comprises a flexible, endless strip or band having a plurality of equally spaced lamps permanently secured thereto. The wheels revolve as the multiflash lamp unit is moved and the flexible strip follows the contours of the wheel portion with which it is engaged.

The strip 10 may be stiff enough to provide an unbending support for the lamps 11. A wood, pressboard, or plastic strip having sufficient thickness to be stiff enough to support the weight of the lamps 11 without appreciable bending will be satisfactory in most instances. The strip 10, whether stiff or flexible, may be provided with a row of perforations along its length, similar to those in motion picture films, for engagement with the teeth of a mechanism for moving the multiflash lamp unit. The strip 10 may consist of metal if electrically insulating material is provided between wires 14 and 15 and strip 10.

The lamps 11 may be similar to those disclosed in the Fulton and Foote Patent 2,424,446 granted July 22, 1947, and assigned to the assignee of this application. In such lamps the wires 14 and 15 each support a compact body 18 of combustible material in a light transmitting bulb which contains a supporter of combustion, such as oxygen. The ends of wires 14 and 15 are bridged by filament 19 which serves to ignite the beads 18 which constitute the sole source of light in such lamps. In the lamps disclosed and claimed in Patent 2,424,446, an electrically insulative base forms part of the bulb and the current leading-in wires pass through the base. The portions of these wires extending outward from the lamp base are utilized according to my invention to secure the lamps 11 to the strip 10 and as contacts for the lamp.

Other types of flash lamps may be used in my multiflash lamp unit. For example, a flash lamp comprising a loosely arranged combustible material which occupies substantially all of the space defined by the bulb may be used. Lamps of this type provided with conventional bases not including wires 14 and 15 outside the base are commercially available and a species thereof is disclosed in U. S. Patent 2,306,563, issued December 29, 1942, to Marvin Pipkin. The bulb of the patented lamp contains readily combustible thin foil which emits actinic light when ignited.

The multiflash lamp unit of my invention is

advantageous in connection with multflash lamp devices for inserting and removing a plurality of lamps simultaneously without handling each lamp individually to eliminate delay in taking a series of photographs. The unit is also advantageous in the manufacture and packaging of the lamps. Thus, a group of bases 13 for lamps 11 of the type described in the Fulton and Foote patent may be secured in series relation to the strip 10 by the wires 14 and 15 before the bulb 12 is mounted on the base 13. The bulb 12 is then secured to the base 13 and the other steps in the manufacture of the lamps 11 carried out. After the lamps 11 have been completed, the multiflash unit comprising a plurality thereof secured to the strip 10 may be packaged for shipment without handling individual lamps.

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

1. A multiple lamp unit comprising a support strip of insulating material and a plurality of flash lamps attached to said strip at spaced intervals, each of said lamps comprising an envelope containing combustible material and leading-in wires extending through an end of said envelope and supporting electrical ignition means within said envelope, said wires also extending through

said support strip and being bent against the strip to serve as contacts and to clamp the said end of the envelope against the strip.

2. A multiple lamp unit comprising a strip of insulating material and a plurality of flash lamps attached to said strip at spaced intervals, each of said lamps comprising a bulb containing combustible material and having a base at one end and leading-in wires extending through the bottom of said base and into said bulb and supporting electrical ignition means within said bulb, said wires also extending outwardly of said base through said strip and being bent against the strip to serve as contacts and to clamp the end of the base against the strip.

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