Oct. 31, 1944. W. F. MacGREGOR 2,361,485

FLASHING LAMP

Filed Jan. 26, 1944

Fig. 1.

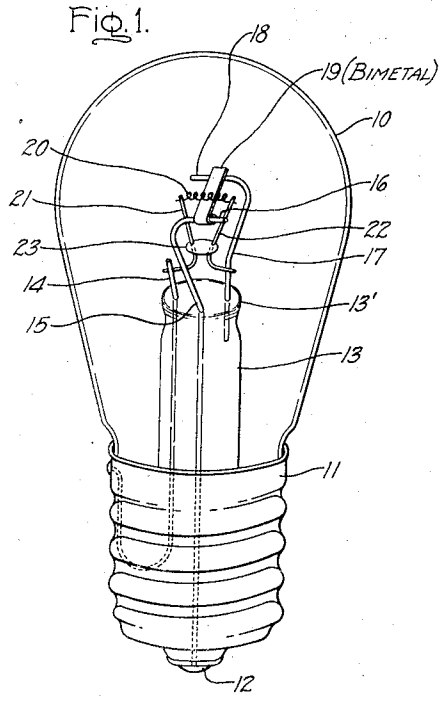
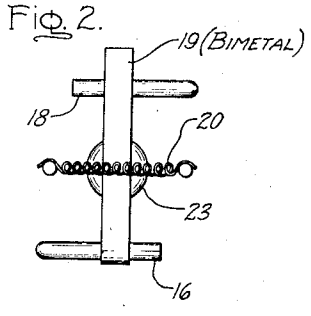


Fig. 2.



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Patented Oct. 31, 1944 2,361,485

UNITED STATES PATENT OFFICE

2,361,485

FLASHING LAMP

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Application January 26, 1944, Serial No. 519,765
In Canada March 26, 1943

4 Claims. (Cl. 315—32)

My invention relates to incandescent electric lamps and particularly to lamps arranged to have the filament automatically energized intermittently.

For many purposes it is desirable to have an incandescent lamp which flashes intermittently. For example in battery operated lamps used for signalling purposes on life preservers, buoys and the like, a flashing light is desirable not only on account of its greater conspicuousness but also on account of longer battery and lamp life which is obtained.

My invention provides a means incorporated in the lamp itself as a permanent part thereof whereby the current through the filament is intermittently interrupted and completed and provides a lamp of simple, reliable construction which can be inserted in standard sockets and flashed intermittently without the use of additional apparatus.

In accordance with my invention I mount a bimetallic strip on supports extending from the lamp stem and arranged in such a manner with respect to the lamp filament, that when the filament is cold the circuit therethrough is complete but when influenced by the heat from the filament the circuit therethrough is interrupted.

For a complete understanding of my invention reference is made to the following detailed description of an embodiment thereof together with the accompanying drawing. In the drawing Fig. 1 is a perspective view of a lamp of my invention; and Fig. 2 is a view looking down on the top of the elements.

As shown in the drawing the incandescent lamp comprises an exhausted glass bulb 10, which encloses a hollow vitreous stem 13. Current lead-in wires 14 and 15 inside the hollow stem enter the bulb 10 through the seal or press 13' at the upper end thereof. The lead-in wires are electrically connected to the usual shell contact 11 and center contact 12 of the base respectively as is shown in dotted lines in Fig. 1. The leading-in conductor 15 extends upwardly from the stem and is formed with a bend 16 at its upper end which lies in a plane at right angles to the stem. An additional support or contact wire 17 anchored in the stem 13 also extends upwardly and has its upper end 18 bent to lie at right angles to the stem. The end 18 lies parallel to and spaced from the end 16 of the lead-in wire and support 15. A narrow strip of bimetal 19 has one end secured to the support 16 by welding or the like in such a manner that its free end, when the lamp is cold, is pressed into contact with the upper surface of the support 18 by the resilience of the bimetal strip. A lamp filament 20, which is shown as coiled type, is mounted on the ends of a pair of lead wires 21 and 22 which are held in position by a glass bead 23. The other end of the lead wire 21 is welded to the leading-in wire 14 and the other end of the lead wire 22 is welded to the contact wire 17 at a point between the press and the part contacted by the bimetal 19. The proportion of the parts are such that the mounted filament 20 lies parallel to the supports 16 and 18, midway between them but in a higher plane and the bimetal strip 19 extends between the supports 16 and 18 beneath the filament 20 and with its flat side close to and exposed to the heat radiated therefrom.

When the external circuit leading to the leading-in wires 14 and 15 is closed the circuit through the filament is completed from the leading-in wire 14 by way of the lead wire 21, filament 20, lead wire 22, wire 17, bimetal strip 19 back to the lead-in wire 15. The heat from the energized filament causes the bimetal strip to bend out of contact with the support 18 thereby breaking the circuit through the filament. As the filament 20 is then de-energized the bimetal strip 19 cools down and bends to make contact with the arm 18, again completing the circuit. This energization and de-energization of the filament proceed automatically as long as the external circuit is maintained closed.

The lamp described is of simple, rugged and reliable construction and is readily manufactured. When used in installations where energization by batteries is desired and where size, weight and period of life of the batteries are an important factor, as in connection with life preservers and the like, the longer period of operation provided by the automatically flashing lamp is an important consideration.

The time period of "off" and "on" for the filament can be determined largely by the character of the bimetal strip used and by its initial setting. While the arrangement shown with the bimetal beneath the filament is desirable from the point of view that it is not intruded into the path of the light radiation my invention is not necessarily limited thereto. If the character and proportions of the bimetal is such that the upward bending caused by the heat of sealing the lamp creates the danger of breaking the filament during manufacture, it is desirable to arrange the parts so that on heating it bends away from the filament.

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

1. An electric lamp comprising a sealed glass bulb provided at one end with a pair of external contacts, a pair of lead wires sealed into the bulb wall and connected to the contacts, one of the lead wires projecting into the bulb and having its end bent at right angles to the longitudinal axis thereof, a contact wire projecting into the bulb and having its free end bent and lying parallel to and spaced laterally from the bent end of the said one lead wire, a filament extending laterally of the bulb axis and supported by and electrically connected to the other lead-in wire and to the said contact wire respectively, a flat bimetal strip having one end secured to one of the said bent ends and arranged with its flat side adjacent to the filament and with its free end making contact with the other bent end when the filament is de-energized.

2. An electric lamp comprising a sealed glass bulb provided at one end with a pair of external contacts, a pair of lead wires sealed into the bulb wall and connected to the contacts, one of the lead wires projecting into the bulb and having its end bent at right angles to the longitudinal axis thereof, a contact wire projecting into the bulb and having its free end bent and lying parallel to and spaced laterally from the bent end of the said one lead wire, a filament extending laterally of the bulb axis parallel to the said bent ends and supported by and electrically connected to the other lead-in wire and to the said contact wire respectively, a flat bimetal strip having one end secured to one of the said bent ends and arranged with its flat side adjacent to the filament and with its free end making contact with the other bent end when the filament is de-energized.

3. An electric lamp comprising a sealed glass bulb provided at one end with a pair of external contacts, a pair of lead wires sealed into the bulb wall and connected to the contacts, one of the lead wires projecting into the bulb and having its end bent at right angles to the longitudinal axis thereof, a contact wire projecting into the bulb and having its free end bent and lying parallel to and spaced laterally from the bent end of the said one lead wire, a filament mounted on the ends of a pair of filament support wires which have their other ends secured to the other lead-in wire and to the said contact wire respectively, a flat bimetal strip having one end secured to one of the said bent ends and arranged with its flat side adjacent to the filament and with its free end making contact with the other bent end when the filament is de-energized.

4. An electric lamp comprising a sealed glass bulb with a re-entrant glas stem, a pair of lead-in wires sealed into the stem, a contact wire extending from said stem, one of the lead-in wires and the contact wire extending towards the center of the bulb and having their ends bent to extend parallel to one another and spaced apart, a filament unit consisting of a pair of filament support wires mounted in a glass bead intermediate the ends thereof and a filament extending across the leads at one end, said filament support wires having their other ends secured to the other lead-in wire and to the contact wire respectively in such a manner that the filament is located parallel to the said bend, intermediate thereof, but spaced farther away from the stem, a flat strip of bimetal having one end secured to one of the bent ends in such a manner that its flat side is exposed to radiation from the filament and its other end makes contact with the other bent end when the filament is de-energized and separates from the said other bent end when the filament is energized.

WILLIAM F. MacGREGOR.