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S. J. MENO ET AL
MULTIPLE LIFE LIGHT BULB

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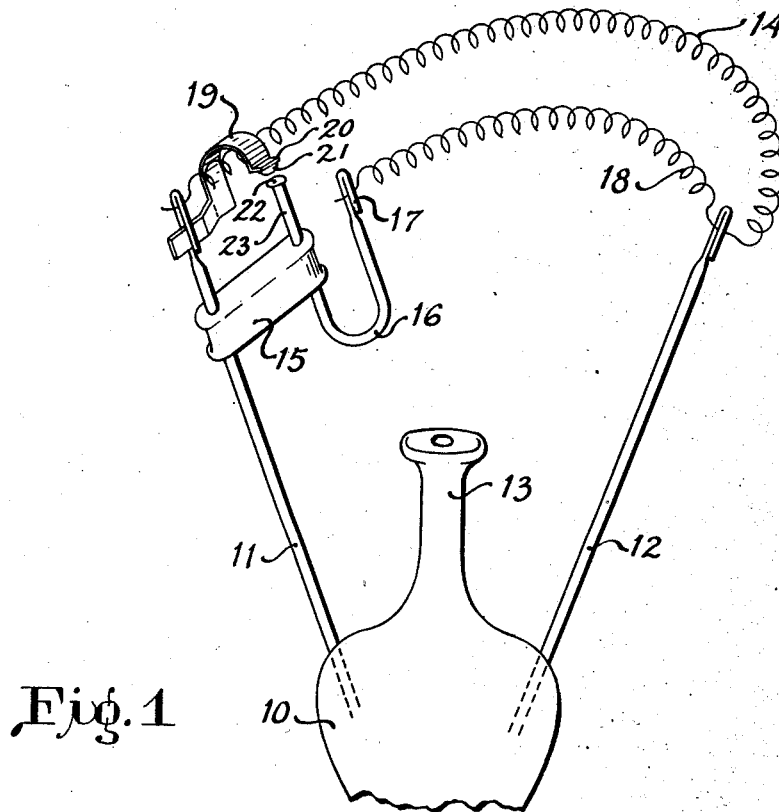
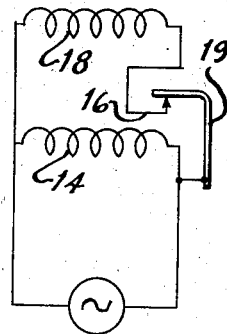


Fig. 2



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MULTIPLE LIFE LIGHT BULB

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2 Claims. (Cl. 315-65)

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This invention relates to a multiple-life light bulb adaptable primarily for street lighting and the like.

Over the whole continent, the maintenance of street lighting facilities requires the engagement of a large staff of inspectors who continually make rounds inspecting and replacing light bulbs along highways and streets. Often the bulbs are replaced after a certain predetermined period even though a portion of their life remains. Aside from the maintenance and replacing staff required under these conditions, there are certain instances where a light bulb becoming suddenly defective results in actual danger to persons. In a moment of reflection many such instances come to mind and it is readily realized that in some situations a real danger exists where a light bulb fails.

It is, therefore, the prime object of the present invention to provide a light bulb which is characterized by a plurality of filaments mounted in a single glass enclosure, each of the filaments being connectable consecutively and automatically when each successive filament burns out.

A further object of the present invention is to provide a plurality life light bulb as formerly described, which due to its use will enable municipalities to cut their lighting service staffs substantially in half.

A still further object of the present invention is to provide a light bulb of this type which, although substantially replacing a plurality of light bulbs, is less expensive to manufacture than that same plurality, yet which may be marketed at substantially the same price as that plurality due to the conditions formerly described, and further set out hereinafter.

A still further object of the present invention is to provide a plurality life light bulb employing a switch mechanism enclosed within the bulb which governs the operation of a plurality of lighting filaments disposed therein, the said switch mechanism being extremely simple in principle and design and, therefore, adaptable to mass production means.

A still further object of the present invention is to provide a light bulb as herein set out which eliminates any danger to human life or health due to failure of a lighting filament.

A still further object of the present invention is to provide a plurality life light bulb as formerly described which is adaptable to many variations in product design whereby its manufacture is facilitated at a minimum initial outlay.

With these and other objects in view, the pres-

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ent invention generally comprises a light bulb having a plurality of lighting elements mounted therein, each of said elements having one end thereof connected to a common source of current, the other end of each of said elements being connectable to a switch mechanism. The elements are thus disposed in the bulb such that they may be connected in parallel by the switch mechanism provided, but normally are not so connected when the bulb is in operation. To this end, the first element of the parallel group is connected directly across a source of voltage, its uncommon standard having a switch means thereto which normally breaks the circuit leading to a parallelly connected element when the first element is drawing current.

Other objects of the present invention will be revealed by a study of the following specification taken in conjunction with the accompanying drawing.

In the drawing:

Fig. 1 is a perspective view of a partial interior structure of one type of conventional light bulb, disclosing elements connected to a common standard, the other of said element having its other end connectable to said switch means which is normally open when said first element is drawing current.

Fig. 2 is a schematic of the preferred circuit of the present invention.

Referring to the drawings, the inner extruding mounting portion 10 of a conventional electric light bulb is shown, having standards 11 and 12 extending upwardly therefrom. The standards 11 and 12 are connected to the socket of the bulb (not shown) in the normal manner. To facilitate the support of some types of filaments base means 13, which normally mounts supporting wires (not shown) for the element, is shown extending from the glass mount 10.

Connected between the two standards, a conventional lighting filament 14 is shown being for further purposes termed the primary element or primary filament. A stand-off insulator 15 is mounted on the standard 11 and carries a rod 16. One end 17 of the rod 16 has a secondary filament 18 mounted thereon, the latter extending to the common standard 12. Also mounted on the standard 11, a bi-metal 19 is shown substantially enclosing a portion of the filament 14 in spaced relation thereto and has its outer end 20 disposed toward the rod 16. A contact point 21 is mounted on the free end 20 of the bi-metal 19 and made of tungsten or other suitable material. A cooperating contact means 22 is shown

mounted on the upper extremity 23 of the wire 16.

The contacts 21 and 22 in this particular case are normally closed when the filament 14 is drawing no current at which time both filaments 14 and 18 will be connected in parallel across the standards 11 and 12. When the standards 11 and 12 are connected across a source of current, both filaments 14 and 18 will receive current and emit heat, the filament 14 thus causing the bi-metal 19 to uncoil, resulting in an opening of the contacts 21 and 22 and a breaking of the circuit of the filament 18.

It is, of course, necessary that the bi-metal 19 be fashioned in a particular manner of suitable materials, for certain conditions must be overcome. Preferably the bi-metal is placed in close proximity to the filament 14 as shown and finished to a high polish on its exterior surface, whereby it is made almost entirely dependent on the heat generated by the filament 14. The bi-metal must be disposed in its normal closed position under the operating temperature of the bulb exclusive of the heat generated by the filament 14. To this end, the exact nature of the contact point 21 and 22 must be designed to ensure closure of the circuit involving the filament 18 under normal operating temperatures in the bulb assuming filament 14 has failed. The curved nature of the bi-metal 19 results in the presenting of its outer surface to the radiant heat energy emanating from the filament 18 when the latter is drawing current so that the contacts 21 and 22 will not open during energization of filament 18.

It is intended that the present disclosure should not be construed as limiting in any way except as defined by the scope of the following claims.

What we claim as our invention is:

1. A plurality life lighting device comprising a primary light emitting filament connected across a source of current, and a secondary filament connectable across said source of current when said primary filament fails, a bi-metal element mounted adjacent said primary filament at one end thereof and connected thereby to said source of current and designed partially to enclose said primary filament at a predetermined distance therefrom, said secondary filament and said primary filament being commonly connected at their one end to said source of current, rod means mounting the other end of said secondary filament and disposed to engage said bi-metal whereby to complete the electrical circuit of said secondary filament when said primary filament ceases to draw current, insulating mounting

means for mounting said rod and disposing the latter to engage said bi-metal, said bi-metal disengaging from said rod to disconnect said successive filament from its circuit when said preceding filament draws current and emits radiant energy, said bi-metal engaging said rod normally after failure of said primary filament and conducting current from said source to said secondary filament when the latter is emitting radiant energy the exterior surfaces of said bi-metal being designed to reflect heat and light, said filaments being disposed in substantially equivalent light emitting positions, whereby one filament is the equivalent of each other filament in illuminating value.

2. A plurality life lighting device comprising, a primary coiled light-emitting filament connected across a source of current, a secondary filament connectable across said source of current when said primary filament fails, a bi-metal element mounted adjacent a fixed end of said primary filament, a standard mounting the latter, said bi-metal element extending therefrom to partially enclose said filament at a predetermined distance therefrom, a standard connecting the other end of said primary filament and one end of said secondary filament commonly to said source of current, stand-off insulator means extending from the standard mounting said bi-metal, rod means mounted in said stand-off insulator means, said rod mounting the other end of said secondary filament and designed also to engage said bi-metal when no current is drawn by said primary filament, said bi-metal engaging said rod normally after failure of said primary filament and conducting current from said source to said secondary filament, the exterior surfaces of said bi-metal being designed to reflect heat and light, said filaments being disposed in substantially equivalent light emitting positions, whereby one filament is the equivalent of each other filament in illuminating value.

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