Feb. 15, 1949. B. E. CARLSON 2,461,962

TELLTALE LAMP SOCKET

Filed Aug. 26, 1947

Fig. 1

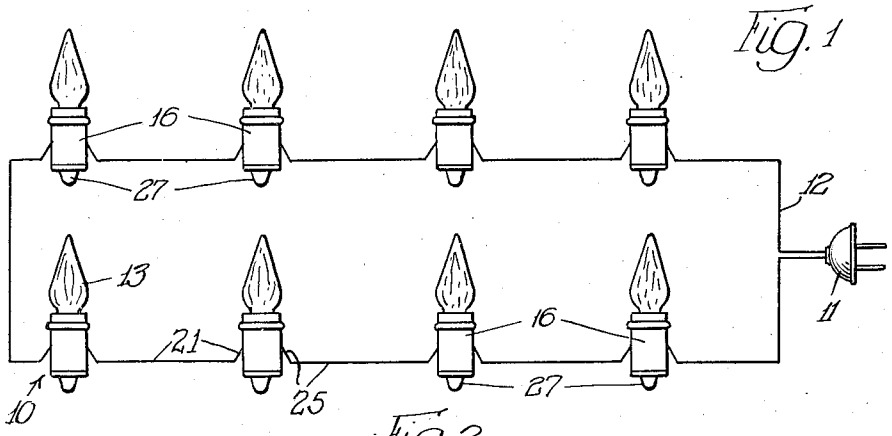


Fig. 2

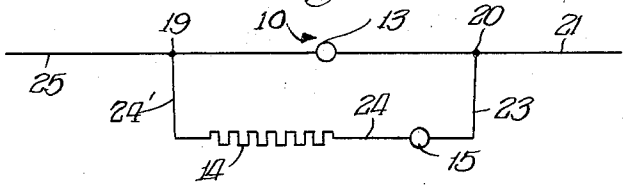
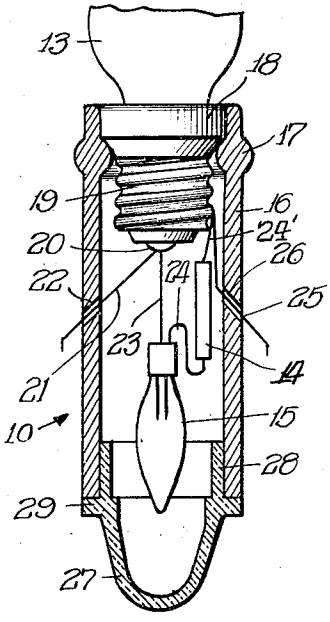


Fig. 3



INVENTOR.

Bernard E. Carlson,

BY

Cromwell, Grust + Warden.

Attys.

Patented Feb. 15, 1949 2,461,962

UNITED STATES PATENT OFFICE

2,461,962

TELLTALE LAMP SOCKET

Bernard E. Carlson, Chicago, Ill.

Application August 26, 1947, Serial No. 770,625

3 Claims. (Cl. 315—92)

1

The present invention relates to an improved and simplified telltale light socket whereby the condition of series-connected incandescent lamps or like resistance elements may be readily ascertained visually. The socket of the present invention is particularly devised for use in strings of inexpensive, series-circuit-connected ornamental Christmas tree lights.

It is an object of the invention to provide a novel and improved socket assembly in which a standard, threaded base, incandescent lamp is mounted in conjuncture with a shunt circuit including a resistor and indicating glow tube, said assembly being characterized primarily by the simplicity and inexpensiveness of production thereof.

I am aware that it has been proposed to provide hook-ups of inexpensive incandescent Xmas tree lights in which the series-connected lamp filaments are each provided with a shunt circuit including a resistor and a small neon or like glow tube connected in series with said resistor. In these arrangements, the resistance of the resistor and glow tube by-passing the small incandescent lamp is sufficiently great that insufficient current normally flows through the tube to illuminate the same. However, should the filament of the incandescent lamp be ruptured or burned out, the current traverses the parallel resistor-glow tube circuit, causing the glow tube to illuminate and thereby visually indicate the inoperative condition of the incandescent lamp.

While indicator circuits of the foregoing type are well known, no one to my knowledge has evolved a suitably inexpensive, yet practical and effective, mechanical arrangement for incorporating the glow tube and resistor in a single unit with the provisions receiving the incandescent lamp, enabling strings of lights to be sold in competition with known types of parallel circuit hook-up. The present invention is therefore directed to, and has as its object, the provision of a practical socket assembly or arrangement for accomplishing this purpose. The assembly is only slightly more costly of production than existing series circuit units on the market and its slight additional cost is amply repaid to the user in the form of the convenience of detection of burned-out, inoperative bulbs or incandescent lamps.

The foregoing statements are indicative in a general way of the nature of the invention, but other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

2

A single embodiment of the invention is presented herein for purpose of exemplification, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claims.

In the drawings,

Fig. 1 is a diagrammatic view illustrating the socket assembly or unit of the present invention as incorporated in a string of ornamental Xmas tree lights, eight in number;

Fig. 2 is a schematic wiring diagram illustrating the parallel circuit arrangement of each lamp of the string with a resistor and glow tube; and

Fig. 3 is an enlarged fragmentary view in longitudinal section through one of the socket assemblies illustrated in Fig. 1.

Referring to Fig. 1, there is illustrated therein a plurality of the socket assemblies 10 of the present invention which assemblies, like the small, standard threaded socket bases adapted to receive a well known type of inexpensive ornamental Xmas tree lights, are series-connected to one another. A conventional plug or prong connector 11 receives the opposite ends of the conductor 12 connecting the assemblies 10.

Fig. 2 schematically illustrates the parallel or shunt circuit wiring of the sockets 10 and devices therein. The reference numeral 13 designates a small colored incandescent lamp of well known, ornamental type; the reference numeral 14 designates a resistor of, say, 100,000–200,000 ohms, although its value is not critical; and the reference numeral 15 designates a small 1/25 watt neon glow tube which is employed as an indicator. Resistor 14 and glow tube 15 are series-connected as a shunt across the terminals or filament leads of the incandescent lamp 13. A shunt circuit of this type is associated with each of the incandescent lamps 13 in a manner which will be appreciated.

Fig. 3 illustrates structural details of the lamp assembly 10. The same comprises a generally cylindrical base or housing 16 which may be attractively fabricated of any one of a number of well known types of plastic materials available in a large range of colors. Said housing, adjacent one end thereof, is provided with an enlarged peripheral bead 17 serving to limit inward movement of a standard, small, metal lamp socket 18 which is force-fitted into the adjacent end. This socket is of a well known metal type including a threaded terminal sleeve 19 adapted

to receive the threaded base of lamp 13 and a central terminal or contact point 20 insulated therefrom. An electrical circuit is completed through button 20, terminal sleeve 19 and the filament of the incandescent lamp 13 in an entirely conventional fashion, corresponding contacts on said lamps engaging the terminals of the socket 18 when the lamp is screwed into the socket.

A lead 21 is brought in through a side aperture 22 in the wall of the cylindrical housing 16, said lead 21 and one terminal lead 23 of the thermionic glow tube 15 being soldered to the center socket terminal 20. Small neon glow tubes of this type are available at a nominal cost. The other terminal 24 of the glow tube is connected with the resistor 14. Said resistor in turn has a lead 24' soldered to the socket sleeve terminal 19, along with the further lead 25, which is brought out through a second aperture 26 in the side wall of housing 16.

In order that the cost of production and assembly of the component parts may be maintained at a minimum, the glow tube 15 and resistor 14 are suspended and supported in the housing 16 solely by the relatively short connecting conductor leads 23, 24, 24', the slight rigidity of which is nevertheless sufficient to prevent destructive jostling and rattling internally of the housing 16.

Said housing is enclosed at the end thereof opposite socket 19 with a transparent or translucent, molded plastic, dome-like cap, shield or window 27, said window having a sleeve portion 28 at its open end which is force-fitted into the interior of housing 16 and an annular flange 29 which abuts the adjacent end of said housing to limit inward movement of the cap.

In use, should the filament of a lamp 13 become burned out and the other lamps 13 also go out, however, the circuit through resistor 14 and glow tube 15 of the damaged lamp becomes sufficiently energized to illuminate said glow tube and thereby visually indicate the condition of the associated lamp 13. Otherwise, the lesser resistance of lamp 13 in the parallel circuit prevents illumination of the glow tube.

The assembly is characterized primarily by the simplicity and the low cost of fabrication and assembly of the component parts thereof. While the idea of shunting or by-passing lamps in the manner illustrated in Fig. 2 is not claimed to be inventive, nevertheless the arrangement of parts of similar circuits proposed in the past has been so complicated, impractical and costly of production as to be incapable of competing successfully with parallel circuit multiple lamp hookups. The present assembly makes possible the production of an inexpensive series circuit hookup presenting all the advantages of a parallel circuit arrangement, yet which is much less expensive, and which also is able to compete successfully with conventional, inexpensive series circuit strings, from a price standpoint. The cost of production of a string of lamp holders incorporating the present invention is but slightly in excess of the cost of production of the last named series circuit strings not affording the benefits herein made possible.

I claim:

1. An indicator lamp socket assembly for series-connected lamp strings comprising a hollow tubular housing having a threaded, incandescent lamp socket fixedly connected to one end thereof, said socket including electrical terminals for a filament type lamp threaded therein, a resistance circuit including an electrically energizable visual indicating device disposed in the interior of said housing and electrically connected to said terminals, whereby to be in parallel with the filament of said lamp when the latter is operably mounted in said socket, said housing having a light transmissive area adjacent said indicating device for viewing the latter when energized, and a pair of leads extending through the side walls of said housing and electrically connected to said respective terminals.

2. An indicator lamp socket assembly for series-connected lamp strings comprising a hollow tubular housing having a lamp socket fixedly secured in one end thereof and provided with contact terminals for a lamp disposed in said socket, electrically energizable visual indicating means disposed in said housing and electrically connected to said terminals, said housing having a light transmissive area at the end thereof opposite said socket for viewing said indicating means when energized, and conductor means extending through said housing and electrically connected to said respective terminals.

3. An indicator lamp socket assembly for series-connected lamp strings comprising a hollow tubular housing having a lamp socket fixedly mounted at one end thereof, said socket including contact terminals for a lamp disposed therein, a luminous glow tube and a resistor series-connected to one another, said glow tube being electrically connected to one of said socket terminals and said resistor to the other, said housing having a light transmissive window at the end thereof opposite said socket for viewing said glow tube when the latter is energized, and conductor means extending through said housing between said socket and window and electrically connected to said respective terminals.

BERNARD E. CARLSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,021,062	Helmbright	Nov. 12, 1935
2,428,441	Waters	Oct. 7, 1947

FOREIGN PATENTS

Number	Country	Date
12,398/1908	Great Britain	June 3, 1909