Nov. 12, 1935. H. H. HELMBRIGHT 2,021,062

INDICATOR FOR INCANDESCENT LAMPS

Filed Dec. 9, 1932

Fig. 1.

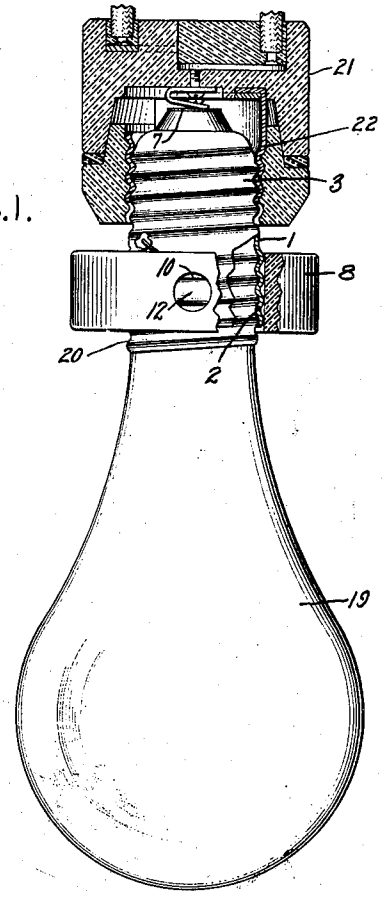


Fig. 2.

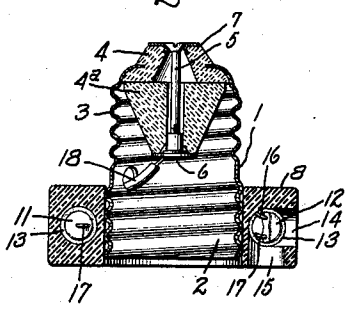
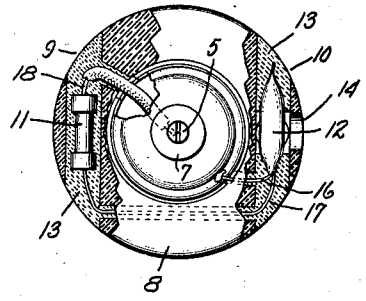


Fig. 3.



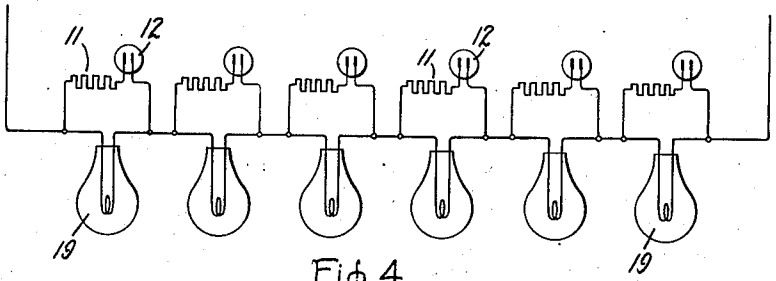


Fig 4.

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INDICATOR FOR INCANDESCENT LAMPS

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Application December 9, 1932, Serial No. 646,463

2 Claims. (Cl. 177—311)

The present invention relates to indicators for incandescent lamps for indicating when a lamp burns out. One application of the invention is in connection with series incandescent lamp circuits for indicating which of the several lamps of a string is burned out when the lamps cease burning. It is to be understood, however, that the invention is not limited necessarily to use in series circuits as it may be used wherever found applicable.

The object of my invention is to provide an improved indicator of the above referred to type, and for a consideration of what I believe to be novel and my invention, attention is directed to the following specification and the claims appended thereto.

In the drawing, wherein I have illustrated one embodiment of my invention, Fig. 1 is a side view of an incandescent lamp having an indicator embodying my invention attached thereto; Fig. 2 is a vertical sectional view through the indicator structure; Fig. 3 is a top plan view, partly in section, of the structure shown in Fig. 2, and Fig. 4 is a diagrammatic view showing indicators applied to a series lighting circuit.

According to the embodiment of my invention shown in the drawing, I provide an indicator which comprises an adapter which fits between the incandescent lamp and its socket forming a unitary part thereof when the incandescent lamp is in its socket and which carries indicating means comprising preferably a small vapor lamp, for example a neon lamp, connected in series with a resistance of high value, the vapor lamp and resistance being in turn connected in shunt to the incandescent lamp filament. As is known, a vapor lamp, such as a neon lamp, is rendered luminous by a relatively small amount of current.

As shown particularly in Figs. 2 and 3, the adapter comprises a metal shell 1 which has one end 2 corrugated as indicated to provide threads into which the shell on the end of an incandescent lamp may be screwed, and which has the other end 3 corrugated as indicated to provide threads adapted to screw into a standard lamp pocket. Connected to the upper portion of shell 1 is an insulating structure comprising in the present instance two insulating members 4 and 4a connected by a screw 5 which serves to connect an inner contact 6 with an outer contact 7.

Insulating member 4 may comprise a suitable compound into which the edge of shell end 3 is molded and insulating member 4a may comprise a suitably shaped block of porcelain or similar material held in position against insulating member 4 by screw 5. Inner contact 6 forms a nut for screw 5 and is held in position by the screw. Outer contact 7 may be held by having an edge molded into insulating member 4.

When the adapter is screwed into a lamp socket, the outer contact 7 makes contact with the central contact of the socket and when an incandescent lamp is screwed into the adapter, its central contact engages the central contact 6 of the adapter. The shell 1 forms the other terminal, being in electrical engagement with the shell of the socket and the shell of the lamp.

Surrounding the lower portion of shell 2 and suitably united thereto is a ring 8 of suitable insulating material such as a suitable molding compound. Ring 8 is provided with two transversely extending openings 9 and 10. Located in opening 9 is a suitable resistance 11 of high value. Located in opening 10 is a small vapor lamp 12, such as a neon lamp, which is rendered luminous by a relatively small amount of current. The resistance 11 and vapor lamp 12 may be fastened in place by a suitable sealing compound as indicated at 13. In ring 8 in line with vapor lamp 12 are openings 14 and 15 through which the lamp may be viewed it being thus visible from a plurality of points. Lamp 12 has one terminal connected to shell 1 by conductor 16 and the other terminal connected to one terminal of resistance 11 by a conductor 17. The other terminal of resistance 11 is connected by a conductor 18 to central terminal 6. With this arrangement it will be clear that when an incandescent lamp is screwed into the adapter, and the adapter is threaded into a socket, the vapor lamp 12 and resistance 11 are connected in shunt to the incandescent lamp filament. This is shown diagrammatically in Fig. 4.

In Fig. 1, an incandescent lamp 19 is shown as having a base including a shell 20 which is threaded into the adapter, the adapter thus forming in substance a part of the lamp. The upper end 3 of the adapter is threaded into a lamp socket 21 by screwing the portion 3 of the adapter into the socket shell 22.

Fig. 4 shows a series lighting circuit in which a series of incandescent lamps 19 are each provided with an adapter embodying my invention connected in shunt thereto. Resistances 11 are of such high value that during normal operation only negligible current flows through them and the vapor lamp in series therewith, the current being insufficient to cause the lamp to glow. In case one of the lamps 19 burns out, the series circuit is opened and all the lamps go out. In

the case of the burned out lamp, the resistance and the glow lamp which are in shunt with the burned out lamp will be connected directly in the series circuit and while the current flowing will not be sufficient to light the lamps 19, it will be sufficient to cause the vapor lamp to glow. Accordingly, the attendant can see immediately by the glow of the vapor lamp which incandescent lamp is burned out and can replace the same. By means of the plurality of openings 14 and 15, the vapor lamp is visible from a number of points, a thing of great convenience in actual practice in detecting the burned out lamp.

It will be seen that the adapter is simple in structure comprising few parts, and can be manufactured at low cost. Also, it is simple to use, being adapted for use in connection with standard lamps and sockets now in use. This is an important consideration.

While I have shown my indicator as embodied in an adapter built as a separate structure adapted to be located between an incandescent lamp and the socket, it is to be understood that my invention is not limited to this arrangement necessarily and that the indicator may be constructed as a unitary part of either the incandescent lamp or its socket.

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

1. An adapter comprising a continuous shell, a central contact, insulation holding them in spaced relation to each other, one end of said shell being adapted to be connected to a lamp socket and the other end being adapted to have an incandescent lamp connected thereto, a member carried by the shell and having an opening therein, a vapor lamp mounted in said opening, said member being provided with one or more passages through which the lamp is visible, and a resistance carried by the member, said resistance and vapor lamp being connected in series with each other to the shell and central contact.

2. An indicator for an electrical device comprising a threaded shell provided with a center contact insulated from the shell at one end thereof and arranged for use as a plug, a ring of insulation material mounted on the outside of the other end of said shell which is adapted to receive a lamp base, said ring having mounted therein an electric vapor lamp and a resistance connected in series therewith, the said lamp and resistance being connected to the shell and center contacts respectively whereby said lamp is energized when a predetermined potential is applied across said shell and center contact.

HENRY H. HELMBRIGHT.