

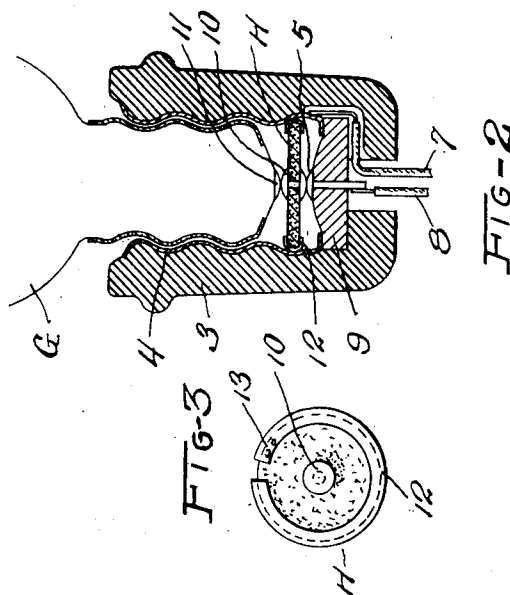
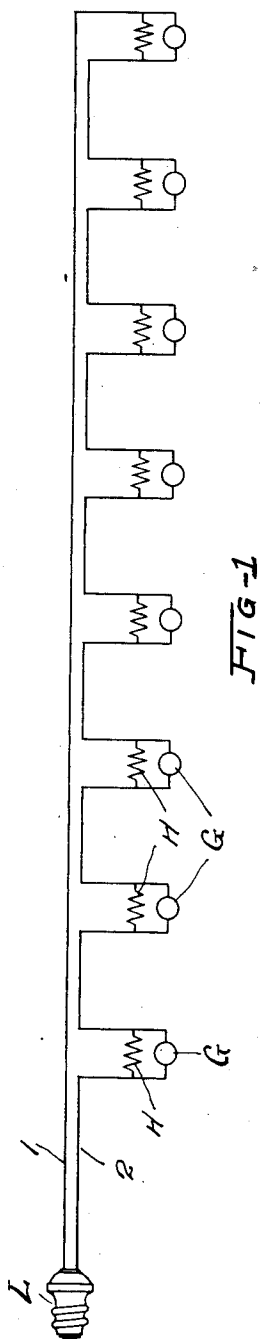
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ELECTRIC LIGHTING SET RESISTOR

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ELECTRIC LIGHTING SET RESISTOR

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This invention relates to a means by which to locate a defective lamp in an electric lighting set, that is in such a set for instance as is commonly used for Christmas tree illumination and the like, and an object of the invention is to provide means which may be incorporated into or attached to the set by which a defective lamp may be quickly and easily located.

A more detailed object is to provide simple, inexpensive and efficient means whereby upon failure of one of the lamps of such a circuit all of the remaining lamps will be dimmed, thus necessitating prompt correction of the fault, and the defective lamp being made conspicuous by being of course totally extinguished.

A further object is to provide an article adapted to be manufactured and marketed independently of the commercial lamp socket and adapted for attachment to or removal from such a socket and including means effective to diminish the flow of current through the set upon failure of a lamp in the socket.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawing which is to be taken as a part of this specification, and in which I have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a diagrammatic view of a series set constructed in accordance with this invention.

Fig. 2 is a similar sectional view of a modified form of the invention, and

Fig. 3 is a detail plan view of a resistance element shown in Fig. 3.

Referring to the drawing for describing in detail the structures therein illustrated, the reference character L indicates an ordinary screw plug which is adapted to be engaged within any standard type of wall receptacle for receiving therefrom a supply of electric current in a manner common to series sets of the kind here concerned.

The reference characters G—G indicate the lamps or bulbs which are connected in series in the set, and the reference characters H—H represent resistance elements, shunted one around each of the lamps G.

Two conductors as 1 and 2 extend along the length of the set, the conductor 1 being continuous and unbroken but the conductor 2 having

the lamps interposed at intervals therein, and the resistance elements also interposed bridging the lamps respectively.

In a set as thus constructed the current will flow through the conductors and lamps for maintaining the lamps illuminated in the usual manner, the resistance elements H being of such capacity that little or no current will pass through them when the lamps are burning.

If however any one of the lamps should fail then the resistance element associated with that particular lamp would immediately provide a path through which a certain quantity of current will pass sufficient to maintain all of the remaining lamps illuminated, although preferably considerably dimmed.

If more than a single lamp should fail the resistance elements of each will be called into use for transmitting the current.

It is intended that the dimmed condition of the burning lamps shall be such as to attract attention and render prompt correction of the fault desirable, while yet rendering the fully extinguished condition of the defective lamp conspicuous so that the location of the defective lamp is instantly revealed.

Renewal of the defective lamp or lamps will of course relieve the resistance element of current and reestablish the normal circuit through all of the lamps.

As a convenient and practical means by which this result may be obtained it is proposed, by the illustration Fig. 2, that each of the lamp sockets may include a body member as 3, of insulating material, the usual threaded shell contact 4 interiorly of this body member, a central contact 5, and a resistance element H. Conductors as 7 and 8 may be connected with the shell contact and with the central contact respectively in the usual manner.

The resistance element H in this socket will provide ample electrical separation of the contacts 4 and 5 so long as the lamp as G in said socket is in good condition. It will provide a resistance connection between said contacts however for accomplishing the result as above set forth if the lamp G should fail.

The resistance element H consists of a separately formed disc or button-like member adapted to be inserted into the socket or removed at will, as more clearly illustrated in Fig. 3. The resistance material may be in the form of a small separately formed disc. It may have a central contact as 10 extending therethrough with terminals at opposite surfaces of the discs for en-

gagement by the contact 5 on the one hand and the centre contact 11 of the lamp on the other hand. It may have a ring shaped metallic contact as 12 gripping about its marginal edge for making electrical engagement with the interior surface of the shell contact 4. The contact 12 may be in the form of a split ring firmly clamped to the insulating disc by one of its ends as at 13, the ring being springy and its other end portion thereby adapted to exert spring pressure against the contact 4 whereby to serve the double purpose of effecting a good electrical engagement with said contact 4 and at the same time preventing accidental displacement of the resistance element from its position within the socket.

The circuit for a burning lamp will be completed through the central contact 10, but upon failure of the lamp the contact 10 will merely transmit to the resistance element and thence to the shell contact and the conductor 7.

A series set constructed in accordance with this invention is particularly adapted for use as Christmas tree illumination and for other ornamental purposes. When one of its bulbs fails all of them are instantly affected. The defective bulb of course becomes extinguished and the others, instead of being extinguished or of continuing to burn with undiminished strength, become decidedly dimmed. The entire set is thus given what may be termed a "sickly" look and correction of the fault is thereby so pressingly demanded that it is likely to receive prompt attention. At the same time the contrast between the dimmed bulbs and the extinguished one will serve to instantly identify the location of the existing defect.

It is important furthermore to note that in case two or more of the lamps should fail this would result in interposing into the active circuit an additional resistance element for each lamp failed. The total resistance in the circuit will be increased one step for each defective lamp. Even if there be only a single good lamp this would not be oversupplied with current. In fact the amount of current supplied to good lamps will decrease one step for each defective lamp, so that the greater the number of defective lamps the less brilliant will be those remaining.

The quality of resistance may be such that if desired, it will operate to practically shut off all of the current with the failure of any given number of the lamps. That is to say that when two or more of the resistance elements have been forced into the circuit by failure of their respective lamps their accumulated value will cause them to operate collectively as an insulator.

The use of an appropriate resistance material for inclusion in the lamp sockets need incur little or no increase in cost of manufacture.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the

above description or shown in the accompanying drawing, shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A lamp socket having the usual central contact and shell contact, and a separately formed resistance element in said socket having a springy part which frictionally engages one of the contacts of said socket and thereby holds said resistance element in position bridging the two contacts of said socket.

2. A lamp socket having the usual central contact and shell contacts, and a resistance element for insertion into said socket to bridge between the contacts of said socket, said resistance element consisting of a disc of resistance material, a spring ring encircling said disc in contact therewith adapted to exert spring pressure against the shell contact for holding the resistance element within the socket, and a metallic conductor extending through said disc adapted to engage the central contact of the socket and to be engaged by the central contact of a lamp inserted in said socket.

3. A resistance element for insertion within the lamp sockets of series sets, said resistance element consisting of a disc of resistance material intended to be removably arranged flat within the bottom of the socket, a metallic conductor extending through said disc adapted to engage the central contact of the socket and to be engaged by the central contact of a lamp inserted in said socket, and metallic spring means having electrical connection with said disc and arranged to exert a spring pressure against the shell contact of the socket to thereby hold the disc removably within the socket and to connect it electrically with the shell contact of the socket.

4. An article of manufacture, consisting of a button-like element for insertion and removal within lamp sockets of series sets adapted to permit the passage of current through said socket in the event of failure of a lamp within said socket, said button-like element consisting of a disc of resistance material having a central opening therethrough, a metallic conductor extending through said opening having terminal forming heads at its opposite ends in electrical engagement with the central portion of opposite side surfaces of the disc spaced from the margin of the disc, said heads being disposed so that one thereof serves as a terminal to engage the central contact of the socket and the other as a similar terminal to be engaged by the central contact of a lamp in the socket, and said disc having a marginal part spaced from said conductor adapted when the disc is in position within a socket to stand continuously in electrical engagement with the shell contact of the socket to thereby electrically connect said shell contact with the resistance material of the disc.

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