

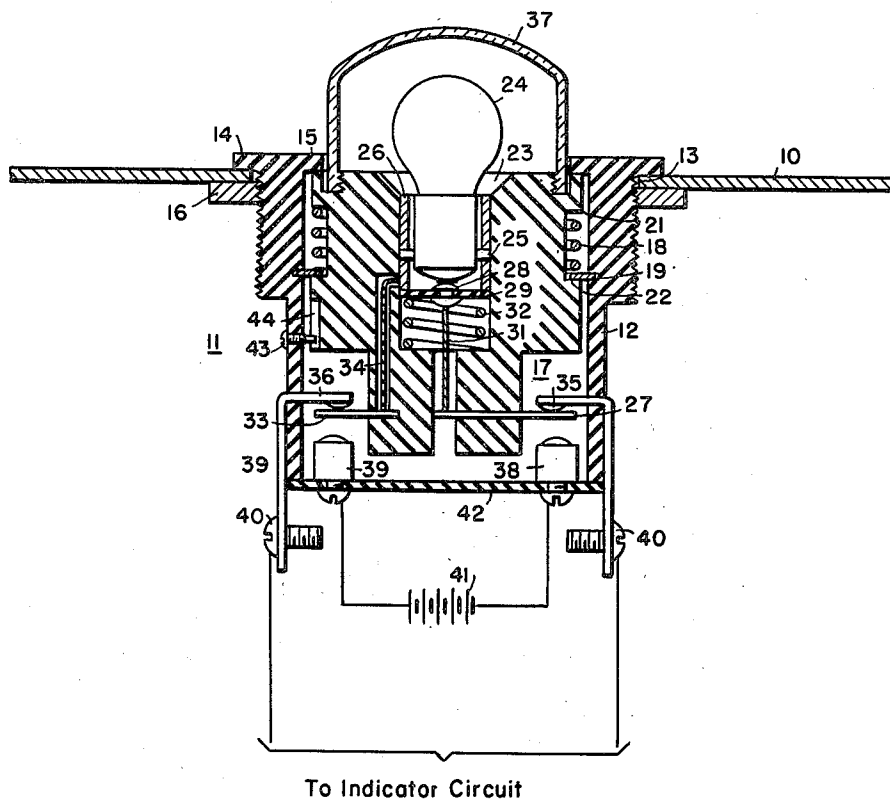
Feb. 5, 1957

H. J. TYLER

2,780,801

INDICATING LIGHT AND TEST CIRCUIT

Filed Dec. 7, 1953



WITNESSES:

*E. A. M. Blakey*  
*Wm. B. Sellers*

INVENTOR

Hugh J. Tyler.

BY *R. Philcox*  
ATTORNEY

1

2,780,801

## INDICATING LIGHT AND TEST CIRCUIT

Hugh J. Tyler, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application December 7, 1953, Serial No. 396,668

2 Claims. (Cl. 340—214)

My invention relates, generally, to indicating lights, and, more particularly, to indicating lights of the type utilized on switchboards and control panels.

Indicating lights are provided on switchboards and control panels to indicate the condition and/or operating position of apparatus located remotely from a switchboard or control panel. Heretofore, in some instances the reliability of the indicating lights has been increased by connecting two lamps in parallel in the indicating circuit. The probability that both lamps would be burned out at the same time is very low. Also, the lamps were transferred to a test circuit by a separate pushbutton or other switching means in order to test a lamp while it is in service. Both of the previous methods have certain disadvantages, such as, the requirement of additional apparatus and mounting space for the additional apparatus. Additional labor is also required to mount and connect the additional apparatus, thereby further increasing the cost of the equipment.

An object of my invention is to simplify the structure and improve the operation of an indicating light and associated circuit.

Another object of my invention is to provide an indicating light structure having a test circuit for the indicating lamp incorporated with the structure.

Other objects of my invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with one embodiment of my invention, an indicating lamp and push button are so combined in a single unit that the lamp may be transferred from the indicating circuit to a test circuit by merely pushing on the lens for the lamp. A source of potential is directly connected to test contact members so mounted in the unit structure that they are engaged by the lamp contact members when the lens is depressed, thereby determining if the lamp is burned out.

For a better understanding of the nature and objects of the invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing, in which the single figure is a view in section of an indicating light unit embodying the principal features of the invention.

Referring to the drawing, the structure shown therein comprises a portion of a switchboard or control panel 10 upon which is mounted an indicating light unit 11. The unit 11 comprises a sleeve 12 which is disposed in an opening 13 in the panel 10. The sleeve 12 may be composed of any suitable insulating material.

As shown, one end of the sleeve has an external flange 14 thereon which engages one side of the panel 10. The sleeve 12 also has an internal flange 15 thereon, the function of which will be more fully explained hereinafter. A nut 16 is threaded on a portion of the sleeve 12 and engages the side of the panel 10 opposite the flange 14, thereby retaining the sleeve in position on the panel.

A base 17, which is composed of a suitable insulating material, is slidably but non-rotatably disposed in the sleeve 12. The base 17 is biased outwardly by a spring

2

18 which is disposed between a snap ring 19 and a shoulder 21 on the base 17. In the structure shown, the outward movement of the base 17 is limited by the internal flange 15 on the sleeve 12 and also by the snap ring 19 which engages a shoulder 22 on the base 17. Thus, the possibility of the force of the spring 18 breaking the flange 15 is precluded.

The base 17 has a central well or opening 23 therein in which a lamp bulb 24 is mounted. The bulb illustrated is of the bayonet base type and is provided with prongs 25 which engage a metal socket 26 disposed in the opening 23. It will be understood that a bulb having a screw base may be utilized if desired.

One terminal of the lamp bulb 24 is electrically connected to a contact member 27 which is carried by and moved with the base 17. The connection to the contact member 27 extends from the bulb 24 through a contact button 28, which is mounted in an insulating disc 29, and a conductor 31 which is connected to the member 27. The disc 29 is biased outwardly against the socket 26 by a spring 32. The other terminal of the bulb 24 is electrically connected to a contact member 33 which is carried by and moved with the base 17. The connection to the member 33 extends through the socket 26 and a conductor 34.

When the base 17 is biased outwardly to the position shown in the drawing the contact members 27 and 33 engage fixed contact members 35 and 36, respectively. As shown, the contact members 35 and 36 are L-shaped and extend through the sleeve 12. Terminal screws 40 are provided at the lower ends of the contact members 35 and 36 for making electrical connections thereto.

As shown, the contact members 35 and 36 may be connected to an indicator circuit, thereby connecting the lamp 24 to the indicator circuit when the base 17 is biased outwardly to its normal operating position. Thus, the bulb 24 functions to indicate the condition or operating position of apparatus located remotely from the switchboard panel 10 and connected to the bulb through the indicator circuit.

A lens 37, which may be composed of translucent material, covers the bulb 24. The lens 37 may be of a particular color, thereby indicating a particular condition or position of the apparatus associated with the indicator circuit. As shown, the lens 37 is threaded into the base 17, thereby permitting it to be removed in order to replace the lamp bulb 24. The base 17 may be prevented from rotating by a screw 43 which extends through the sleeve 12 into a groove 44 in the base 17.

In order to test the lamp bulb 24 the lens 37 may be depressed, thereby moving the base 17 inwardly against the pressure of the spring 18. When the base 17 is moved inwardly the contact members 27 and 33 engage contact members 38 and 39, respectively. The contact members 38 and 39 may be connected directly to a reliable source of electromotive force, such as a battery 41. Thus, if the lamp is in operating condition it will light when the base 17 is depressed since its terminals are connected across the battery 41. The failure of the lamp to light when the base 17 is depressed indicates that it is burned out and should be replaced.

The contact members 38 and 39 are mounted in an insulating member 42 which may be attached to the bottom of the sleeve 12 by screws (not shown). Thus, the unit 11 constitutes a combined indicating and testing device. During normal operation the lamp 24 functions as an indicating light which is connected to an indicator circuit. The lens 37 is illuminated to give an indication of the condition of the apparatus associated with the indicator circuit.

When it is desired to test the lamp 24 it is only necessary to press on the lens 37, thereby connecting the

3

lamp 24 to the test circuit. Therefore, it is not necessary to supply a separate push button and associated circuits for testing the indicating light. Furthermore, it is not necessary to supply an extra lamp which is connected in parallel-circuit relation with the lamp 24 in order to increase the reliability of the indicating light unit since the lamp 24 may be readily tested to determine if it is in operating condition.

From the foregoing description it is apparent that I have provided a simple and compact unit which functions as an indicating light and a testing device for the indicating light. The unit may be readily manufactured and assembled and it is suitable for mounting on a switchboard or control panel. However, it may be mounted on other equipment if desired.

Since numerous changes may be made in the above-described construction and different embodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In an indicating light, in combination, a sleeve, an insulating base slidably disposed in the sleeve, a spring biasing said base outwardly, stop means limiting the outward movement of the base, a lamp bulb removably mounted in the base, a lens disposed over the bulb and extending beyond the end of the sleeve, a pair of spaced movable contact members carried by the base, a pair of spaced contact members fixed in the sleeve and normally engaged by said movable contacts, and an additional pair of spaced fixed contact members disposed to be engaged by the movable contacts when said lens is depressed, said movable contacts being disposed between

4

said pairs of fixed contacts and electrically connected to said lamp bulb.

2. In an indicating light, in combination, a sleeve, an insulating base movably disposed in the sleeve, a spring disposed in the sleeve and biasing said base outwardly, stop means limiting the outward movement of the base, a lamp bulb mounted in the base, a lens covering the bulb and movable with the base, a pair of spaced movable contact members carried by the base and electrically connected to the lamp bulb, a pair of spaced contact members fixed in the sleeve and normally engaged by said movable contact members, an additional pair of spaced fixed contact members engaged by said movable contact members when the lens and the base are depressed inwardly, said movable contact members being disposed between said fixed contact members, an indicator circuit normally connected to said lamp bulb through said first-named fixed contact members and said movable contact members, and a source of electromotive force connected to said lamp bulb through said additional fixed contact members and said movable contact members for testing the lamp bulb when said base is depressed inwardly.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |            |               |
|-----------|------------|---------------|
| 2,424,573 | Marco      | July 29, 1947 |
| 2,424,574 | Marco      | July 29, 1947 |
| 2,610,237 | Benner     | Sept. 9, 1952 |
| 2,625,863 | Kirwin     | Jan. 20, 1953 |
| 2,677,124 | Hallerberg | Apr. 27, 1954 |

##### FOREIGN PATENTS

|         |               |               |
|---------|---------------|---------------|
| 620,531 | Great Britain | Mar. 25, 1949 |
|---------|---------------|---------------|