June 15, 1954 T. S. PALMER 2,681,433

FLASHLIGHT TYPE FUSE TESTER

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Fig. 1.

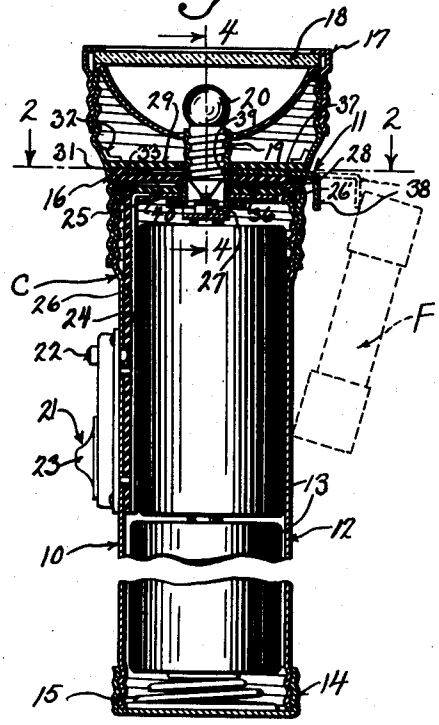


Fig. 2.

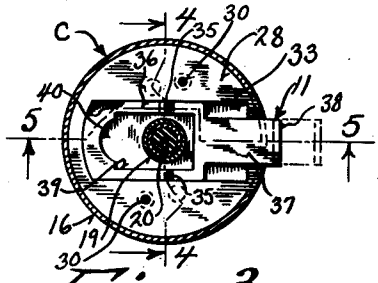


Fig. 3.

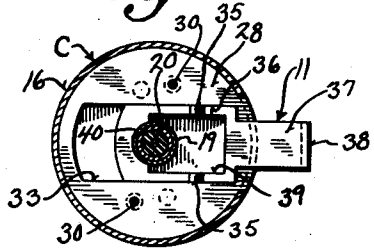


Fig. 4.

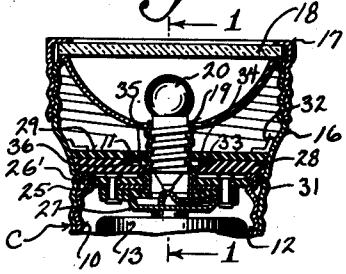


Fig. 5.

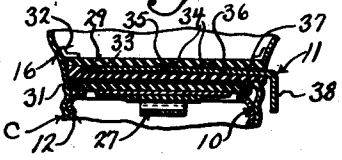
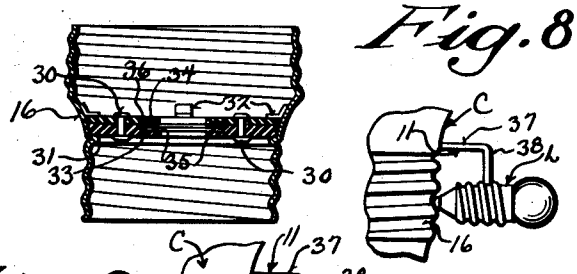


Fig. 6.

Fig. 7.

Fig. 8.



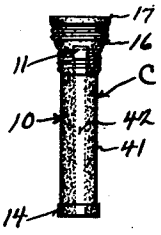
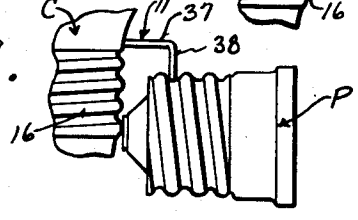


Fig. 9.



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FLASHLIGHT TYPE FUSE TESTER

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Application December 31, 1952, Serial No. 329,038

1 Claim. (Cl. 324—53)

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This invention appertains to an improved flash light and tester combined and more particularly to certain improvements in flash light testers of the kind used by electricians for testing fuses, lights and circuits.

A primary object of my invention is to provide a fuse testing device which may be incorporated in the conventional standard type flash light without interfering with its functions as a flash light in any manner.

Another important object of my invention is to provide a flash light tester which is capable of testing fuses of various sizes and lengths by merely holding the fuse in electrical contact with certain parts of the device.

Another object of my invention is to provide a device of the character described which may be combined with the conventional head portion of a flash light so that a fuse or bulb may be tested by simply placing one terminal thereof against a contact and the other terminal thereof against the casing of the flash light, the flash light bulb lighting if the fuse or bulb being tested is in good working order.

A further object of my invention is the provision of a tester of the character described which has its testing connections and other electrical parts so arranged that when the device is put in a tool box or in contact with other metallic objects, said connections will not cause a short circuit.

A more specific object of my invention is to provide a sliding contact in the head portion of the flash light which may be pushed into an inoperative position or pulled out to an operative position whereby a fuse or bulb may complete a circuit through the light and battery when one portion of the fuse is placed against the casing and the other end against said contact.

A still further object of my invention is to provide a simple, practical, and reliable construction that is economical to manufacture, easy to assemble, and positive in its operation.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts which will hereinafter be more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a side elevational view in section of my combined flash light and tester illustrating in full lines the inoperative position of the sliding contact and showing in dotted lines the operative position of the sliding contact when testing a fuse of the cartridge type;

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Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1 looking in the direction of the arrows and also illustrating by full and dotted lines, the operative and inoperative position of my novel fuse tester;

Figure 3 is a horizontal sectional view similar to Figure 2 of the drawings, but showing in full lines my sliding contact in its operative testing position;

Figure 4 is a fragmentary vertical sectional view through the upper portion of the flash light and testing contact taken on the line 4—4 of Figure 1 and looking in the direction of the arrows;

Figure 5 is a fragmentary vertical sectional view of my testing device taken on the line 5—5 of Figure 2 looking in the direction of the arrows and illustrating further details of the sliding contact;

Figure 6 is a vertical sectional view taken through the flared head portion of the flash light with the casing, reflector and bulb portions removed therefrom;

Figure 7 is a reduced elevational view of my combined flash light and novel fuse tester showing in particular the position of my sliding contact in relation to an exposed casing strip;

Figure 8 is an enlarged fragmentary side elevational view showing my sliding contact in its operative position for testing a light bulb; and

Figure 9 is an enlarged fragmentary view similar to Figure 8 of the drawing, but illustrating a manner of testing a fuse of the plug type.

Referring now to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates one type of my improved combined flash light and tester and the same includes broadly a flash light 10 of a standard type having incorporated therein my novel testing and sliding contact 11.

As stated, the flash light 10 forms no particular part of my invention and may be of any standard construction. However, I have shown and described my novel tester in conjunction with a flash light of the type including a casing 12, two batteries 13, an end closure 14 threadedly received on the casing 12 and a spring 15 interposed between the bottom of the cap 14 and the batteries 13. The flash light 10 also includes a flared head portion 16 which threadedly receives, at one end, a portion of the casing 12 and on the

upper end, a cap 11 and glass 18. Also received in the flared head 16 is a bulb socket 19 and a light bulb 20.

To one side of the casing 12 is the flash light switch 21 which includes a button 22 and hand operated switch 23. A contact strip 24 stretches longitudinally on the inner side of the casing and is in contact with a conducting piece 25 which is, in turn, in direct contact with the bulb socket 19. The casing also carries an insulating strip 26 which normally separates and insulates the contact strip 24 from the casing 12. There is also provided an upper insulating disc 28 which normally insulates contact 25 from the casing 12. Carried at the lower end of the socket 19 is a bulb and battery contacting unit 27. Therefore, when the hand operated switch 23 is actuated or button 22 depressed, a circuit will be completed through the switch 21, casing 12, contact strip 24, conducting piece 25, socket 19, contact unit 27, batteries 13, and the bulb 20 will light.

All of the above constitutes a conventional construction for flash lights and in the preferred embodiment of my invention I incorporated my novel sliding contact in the flared head portion 16. In my invention I provide the head 16 with a pair of insulating discs 28 and 29 which are riveted or otherwise secured together by means of the rivets 30. The lower disc 28 rests on the upper flange 31 formed above the lower threaded portion and the upper disc 29 is anchored in place by means of spaced angular brackets 32 which are welded or otherwise secured to the flared head 16 just below the upper threaded portion.

The upper and lower insulation discs 28 and 29 respectively are each formed with a central aperture to receive the socket 19 of a bulb 20. The lower disc intermediate its ends is provided with a substantially rectangular recess or slot 33 in its upper surface and the under surface of the upper insulation disc 29 is provided with pairs of spaced indentations 34 for the reception of the struck up portions 35 of the sliding contact 11. As shown, the contact 11 is slidably received in the elongated slot 33 and includes broadly an enlarged body portion 36 and a reduced outer end portion 37. The outer end portion 37 is also provided with a depending contact surface 38. The enlarged inner portion 35 of the contact 11 is provided with an enlarged substantially rectangular opening 39 of a greater width than the bulb socket 19 and one end 40 is provided with an arcuate opening which, in one position, may be brought in contact with the bulb socket 19.

When the sliding contact 37 is in its full lined position as illustrated in Figures 1, 2, and 5 of the drawings, the bulb socket 19 will be entirely out of contact therewith (note more particularly Figure 2 of the drawing).

Obviously, the casing 12 may be left in its plain metallic condition or the same may be painted as illustrated in Figure 7 of the drawings and indicated by the reference numeral 41. However, if the casing is painted, a strip 42 in alignment with the depending portion 38 of the contact 11 should be left exposed.

From the above it can be seen that the device may be used as a flash light by merely actuating the switch 21 to complete the circuit through the batteries 13, casing 12, contact strip 24, the conductive piece 25 and socket 19 to light the bulb 20. When the device is to be used as a tester for fuses and light bulbs the sliding contact 11 is pulled outwardly to its dotted line position illustrated in Figures 1 and 2 of the drawings and shown in full lines in Figure 3 of the drawings. In this position of the contact 11, the arcuate portion 40 is resting against the bulb socket 19. Therefore, it is obvious that when a cartridge fuse F is placed with one terminal against the depending portion 38 of the sliding contact 11 with the other terminal against the exposed surface 42 of the casing 12, that a circuit will again be completed through the batteries 13, casing 12, fuses F, contact 11 and socket 19, to light the bulb 20. If, however, the fuse F is not in a good working condition, then the circuit will not be completed and the bulb will not light.

It is also readily apparent that my tester adapts itself to fuses and bulbs of various sizes and shapes. This is clearly illustrated in Figures 8 and 9 of the drawings, in which a light L and a fuse P of the plug type respectively, are being tested. If the fuses or light bulbs are defective, obviously current will not pass therethrough and the light 20 of the testing device will not light.

One of the primary disadvantages to prior flash light testers has been that they are often placed in tool boxes with other metal objects and if a contact is made between the casing and the tester contact, the bulb would light and the batteries eventually run down.

An important feature of my invention resides in the fact that my sliding contact 11 may be pushed inwardly to its full lined position illustrated in Figures 1, 2, and 5 of the drawings so that the same is not in a closed circuit with the socket 19 and therefore a closed circuit cannot be made between the light bulb 20 and the batteries 13 when a metal object is touching the casing 12 and contact 11.

Changes in details may be made without departing from the spirit or scope of this invention, but what I claim as new is:

The combination with a portable flash light of the type having a casing, a flared head portion including a bulb and bulb socket, a light circuit, and a switch in the circuit having an operating button slidably mounted on the side of the casing intermediate the ends of the casing; of a fuse and lamp testing device including an insulated contact having an operative and an inoperative position slidably mounted in the flared head portion, said flared head having a transverse slot intermediate its ends through which one end of said contact extends, said contact having an enlarged inner body portion and a reduced outer portion with said inner portion being provided with a rectangular opening of a greater length and width than the diameter of the light bulb socket and through which said socket extends, and a depending contact portion on the outer end of said contact, said contact in its operative position only being in contact with the bulb socket in a closed circuit with the light circuit both in the "on" and in the "off" positions of the switch, whereby the lamp circuit is closed when the terminals of an operative lamp or fuse to be tested are brought respectively into contact with the casing and the sliding contact.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,128,810	Fortine	Aug. 30, 1938
2,231,660	Carlotti	Feb. 11, 1941
2,550,234	Duncan	Apr. 24, 1951