No. 897,474. PATENTED SEPT. 1, 1908.

C. E. MENTZER.

INDICATING FUSE PLUG AND HOLDER.

APPLICATION FILED FEB. 19, 1906.

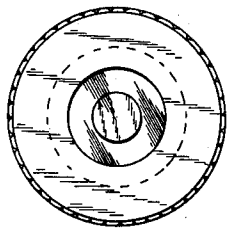


Fig. 2.

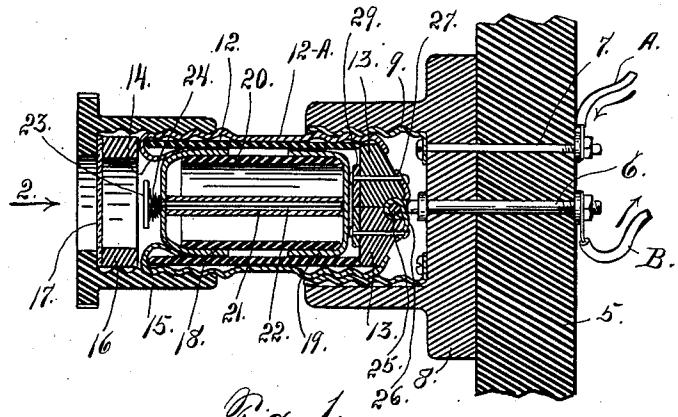


Fig. 1.

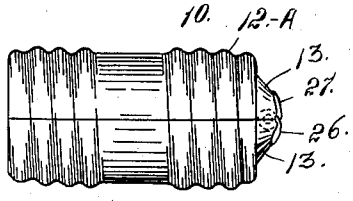


Fig. 3.

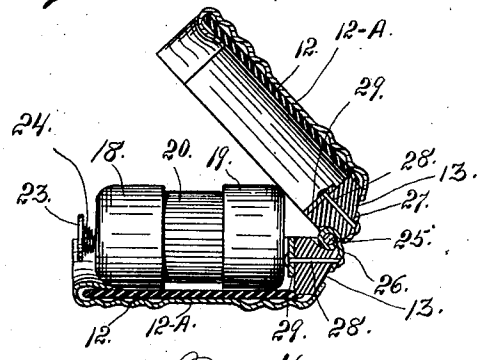


Fig. 4.

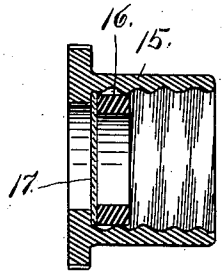


Fig. 7.

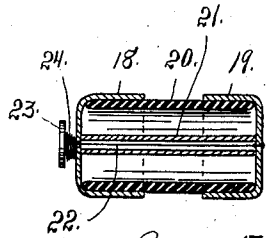


Fig. 5.

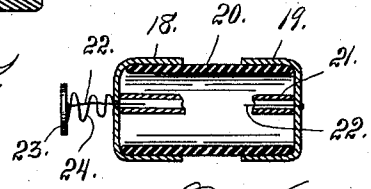


Fig. 6.

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UNITED STATES PATENT OFFICE.

CLAUDE E. MENTZER, OF DENVER, COLORADO, ASSIGNOR OF ONE-THIRD TO LEON A. FREEMAN AND ONE-THIRD TO GEORGE L. BETTCHER, OF DENVER, COLORADO.

INDICATING FUSE PLUG AND HOLDER.

No. 897,474. Specification of Letters Patent. Patented Sept. 1, 1908.

Application filed February 19, 1906. Serial No. 301,813.

To all whom it may concern:

Be it known that I, CLAUDE E. MENTZER, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Indicating Fuse Plugs and Holders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an improved fuse plug and holder.

A very important feature of my construction consists in the fact that means are provided whereby the particular fuse burned out on a switch board containing a considerable number of fuses, is visually indicated without opening the casing or removing the fuse therefrom, since the casing or holder is provided at its outer or forward extremity with a transparent member to permit the inspection of the fuse cartridge within the holder, the said transparent member being located directly in front of the indicating device, the parts being arranged in such a manner that if the fuse is blown or burned, the said device by its changed position will clearly indicate the fact to an observer.

In my improved construction the cartridge is readily removable from the casing. This is accomplished by forming the casing in two parts which are hinged together to permit the free opening of the casing after taking it off the cap and removing it from the plug; while the means for visually detecting a blown fuse consists in running a wire through the fuse, the outer extremity of the wire being connected with a small plate which is acted on by a spring, so that when the fuse is blown or broken, the wire which holds the small plate is also broken and the tension of the spring forces the plate outwardly against a transparent diaphragm through which the plate is visible from a position in front of the switch board thus clearly indicating that the fuse has been blown.

Having briefly outlined my improved construction as well as the function it is intended to perform, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a section taken through a switch board, fuse plug and holder equipped with my improvements. Fig. 2 is an end elevation of Fig. 1 looking in the direction of arrow 2. Fig. 3 is a detail elevation of the casing which incloses the cartridge. Fig. 4 is a section taken through the casing showing the cartridge in elevation. Fig. 5 is a sectional view of the cartridge in detail before the fuse is blown. Fig. 6 is a similar view after the fuse is blown. Fig. 7 is a sectional view of the cap shown in detail.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the switch board; 6 and 7 electrodes passing through the switch board and through the base of the socket 8. The electrode 7 is connected with an interior metal lining 9 of the socket the latter forming electrical contact with the two part casing 10. This casing consists of a narrow cylindrical part 12 of insulating material inclosed by the metal part 12^A which overlaps the porcelain members 13 at the inner extremity of the casing, while at its outer extremity the metal part or sheath 12^A is bent around the outer extremity of the insulating cylinder as shown at 14 and projects inwardly and rearwardly forming a sort of spring, giving the outer extremity of the casing a considerable degree of yielding capacity. Between this outer edge of the casing and the cap 15 which is screwed upon the casing, is located a ring 16 between which and the outer extremity of the cap is located a transparent diaphragm 17.

The cartridge which is inclosed by the casing 10, consists of two end members 18 and 19 connected by an insulating tubular member 20 whereby the end members are insulated from each other. Through the center of this cartridge and connecting the end members is placed a fuse 21 through which is passed a wire 22 whose inner extremity is connected with the end member 19 of the cartridge, and whose outer extremity is connected with a disk 23 acted upon by a coil spring 24 interposed between the end member 18 and the plate 23. The wire 22 passes loosely through the outer member 18 of the cartridge so that when the fuse and the wire are broken as illustrated in Fig. 6, the spring

24 acting on the small plate which may be termed the indicator or indicating plate, throws the latter outwardly against the transparent diaphragm 17 thus clearly indicating the particular fuse which has been blown.

In order to facilitate the removal from the case of the cartridge having the blown fuse, I form the case 10 in two parts which are connected by a hinge pin 25 which passes through the eyes of hinge members 26 and 27 which are held in place by conducting pins 28 passed through the porcelain members 13 and connected with contacts 29. These contacts 29 together with the inner extremities of the pins 28, engage the end member 19 of the cartridge and form an electrical connection between said end member and the electrode 6 through the medium of the hinge members 26 and 27 both of which are engaged by one extremity of the electrode 6.

From the foregoing description the use and operation of my improved device will be readily understood.

Assuming that the device is constructed as heretofore explained, the cartridge is placed within the casing and the casing inserted in the screw socket 8. The cap 15 is then applied to the casing taking care to place the ring 16 and the transparent diaphragm 17 in the cap before screwing it to position. As the cap is screwed upon the casing, the ring 16 engages the yielding outer extremity of the casing which yielding extremity acts on the cartridge to force its end member 19 tightly against the inner extremities of the pins 28 whereby electrical contact is made with the electrode 6.

The path of the current may be said to be from the circuit wire A through the electrode 7, the metal lining 9 of the cap 8, the metal part 12^A of the casing 10, to the outer end member 18 of the cartridge and thence through the fuse 21 to the end member 19 and thence through the pins 28 and the hinge members 26, 27 to the electrode 6 and thence through the other pole of the source (not shown) to the conductor B. Now assuming that the fuse is broken or blown as indicated in Fig. 6, the spring 24 acting on the indicating device 23, will throw the latter outwardly against the transparent diaphragm 17, thus making the indicator visible at a glance.

Having thus described my invention, what I claim is:

1. In a fuse cartridge and holder, the combination of a cartridge provided with a fuse, an indicating device released by the burning of the fuse, a holder inclosing the cartridge and provided with a transparent member located in front of the indicating device, and means for causing the said device to move to facilitate detection of the burned fuse.

2. A fuse cartridge provided with a fuse and a slender device passing through the fuse and connected with an indicating device, and a coil spring adapted to act on the indicating device to move the same when the fuse is burned or blown.

3. A fuse cartridge composed of conducting end members, an insulating member connecting the conducting members, a fuse inclosed by the cartridge member and connecting the two end members, a wire passing through the fuse and made fast at one of the end members of the cartridge, the outer extremity of the wire passing loosely through the other end member, an indicating device connected with the outer extremity of the wire beyond the end member of the cartridge, and a coil spring interposed between the end member of the cartridge and the indicating device for the purpose set forth.

4. A fuse cartridge provided with a fuse, a spring-actuated indicating device held against movement when the fuse is intact but released and actuated by the spring when the fuse is burned, a shell inclosing the cartridge, and a cap applied to the outer extremity of the shell and having a transparent diaphragm located at some distance from the indicating device to allow the latter to move sufficiently for visual indication.

5. The combination of a fuse cartridge provided with a fuse, a spring-actuated indicating device normally held against movement but released to be actuated by the spring when the fuse is burned, the indicating device being located at the outer extremity of the fuse cartridge, a casing inclosing the fuse cartridge, a cap applied to the outer extremity of the casing, a ring interposed between the cap and the outer extremity of the cartridge, and a transparent diaphragm located between the ring and the outer extremity of the cap, the construction being such that a chamber is left between the transparent diaphragm and the indicating device for the purpose set forth.

6. In combination, a fuse plug having a window, a fuse in said plug, indicating means held normally remote from the said window and means to cause the said indicating means to advance towards the said window by action of the blowing of the fuse.

7. In combination, a fuse plug having a diaphanous window, a fuse in said plug, indicating means held normally remote from said window, and means to cause contact of the said indicating means and the said window by action of the blowing of the fuse.

8. In combination, a fuse plug having a window, a fuse contained therein, a plate held normally remote from the said window, and means to project the said plate against the window by action of the blowing of the fuse.

9. In combination, a fuse plug having a window, a fuse contained therein, a plate, means adapted to hold the plate remote from

said window, and to release the same by action of the blowing of the fuse, and means to project the released plate toward the said window.

10. In combination, a fuse plug having a window, a hollow fuse therein, a plate normally held remote from the said window by a connection extending in close proximity to the said fuse, and a spring engaging said plate and adapted to project the latter towards the window when the said connection is broken.

11. In combination, a fuse plug having a window, a plug cartridge contained therein, a fuse within said cartridge, a plate having a connection with the said cartridge adapted to be broken by action of the blowing of the fuse, and means to project the said plate towards the said window subsequent to breaking the connection.

12. In combination, a fuse plug having a window, a plug cartridge contained therein, a fuse within said cartridge, a plate having a wire extending in proximity to the said fuse and connected with the said cartridge and a spring engaging said plate and adapted to project it towards the window, when the connection is broken.

In testimony whereof I affix my signature in presence of two witnesses.

CLAUDE E. MENTZER.

Witnesses:
A. J. O'BRIEN,
DENA NELSON.