F. N. CONANT.

ELECTRIC CURRENT INDICATOR.

APPLICATION FILED JAN. 11, 1907.

**913,105.**

Patented Feb. 23, 1909.

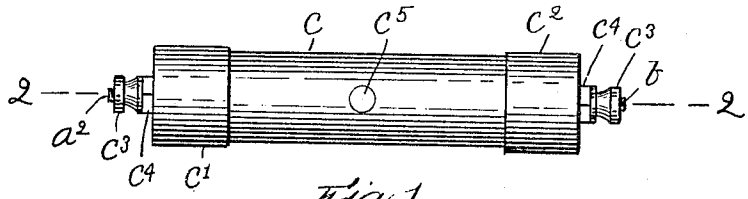



Fig. 1.

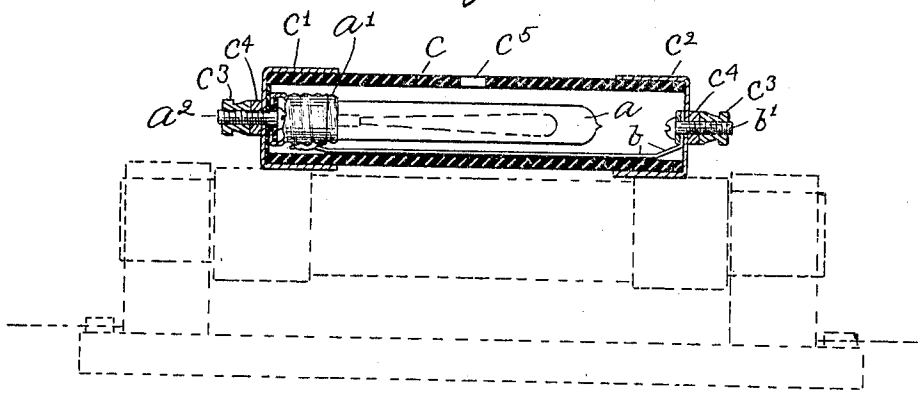



Fig. 2.

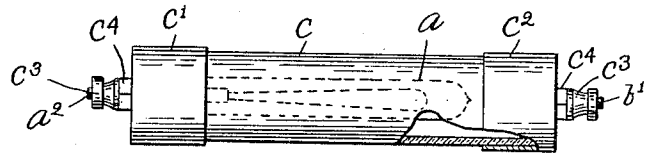



Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC-CURRENT INDICATOR.

No. 913,105. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed January 11, 1907. Serial No. 351,7(

*To all whom it may concern:*

Be it known that I, FRANKLIN N. CONANT, of Newburyport, county of Essex, State of Massachusetts, have invented an Improvement in Electric-Current Indicators, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object to construct a portable electric current indicator, which is especially designed to be applied to or placed in contact with an electric fuse or cut-out, to indicate whether or not the fuse-wire has been disrupted, yet it may be used for a variety of other purposes.

The invention consists in the employment of an incandescent electric lamp, which serves as the indicating-device, and means to mechanically and electrically connect it with a suitable form of support whereby it may be conveniently handled. The support is provided with a pair of terminals, which are adapted to be placed in engagement with the terminals of an electric fuse or cut-out, to thereby connect the indicator in a shunt circuit around said fuse or cut-out, and if the fuse-wire is disrupted the current will pass through the indicator and cause the lamp to glow; but if the fuse-wire has not been disrupted then no appreciable part of the current will pass through the indicator and the lamp will not glow. As a convenient form of support for the indicating-device I prefer to employ a shell or case of insulating material, having end caps which serve as the terminals, and the indicating-device is contained in said shell or case and its terminals electrically and mechanically connected with the terminals of the shell or case.

Figure 1 shows in side elevation an electric current indicator embodying this invention. Fig. 2 is a longitudinal vertical section of the same, taken on the dotted line 2—2. Fig. 3 shows a modified form of support for the indicating-device.

The indicating-device which I prefer to employ consists of an incandescent electric lamp $a$, of any suitable construction and of any required voltage, which is adapted to be held in a lamp-socket $a'$ also of any suitable construction. The socket $a'$ has a bottom of insulating material through which extends a screw $a^2$ of conducting material, the head of which occupies a position on the inside of the socket. The control stud or contact of the lamp normally engages the head of said screw. The socket $a'$ has attached to it one end of a wire $b$, of any suitable length, the opposite end of which is attached to a screw $b'$ of conducting material. The two screws $a^2$ and $b'$, therefore, serve as the terminals of the indicating-device. An uninterrupted path for the current through the indicating-device is provided as follows: screw $a^2$, central lamp contact, lamp filament socket $a'$, wire $b$, and screw $b'$. The indicating-device thus constructed is contained in a shell or case of any suitable construction by which it is supported in such manner that it may be conveniently handled, and for the purpose of illustrating my invention the shell or case comprises a tubular cylinder $c$, of suitable dimensions and composed of insulating material, having end caps $c'$, $c^2$, of conducting material fitted upon and secured to its opposite ends. The end caps $c'$, $c^2$ have holes through them through which the screws $a^2$, $b'$, extend, and for the purpose of mechanically holding the parts assembled as well as for electrically connecting the screws $a^2$, $b'$, respectively with the end caps, nuts $c^3$, $c^4$, either or both, are turned on the screws, the end nuts, if two are employed on each screw, or the single nut thus employed, being brought to bear firmly against the end caps to insure an electric connection. When the parts are thus connected together the end caps become the terminals of the indicator. The length of the shell or case is such that the distance between the terminals is approximately the same as the distance between the terminals of the fuse or cut-outs, so that the device may be placed with its terminals in engagement with the terminals of the fuse or cut-out, to thereby determine whether or not the fuse-wire has been disrupted. The end caps, however, will be made quite long so as to engage the terminals of many different sizes of fuses or cut-outs. When the device is thus applied to a fuse or cut-out the indicating-device will be connected in a shunt circuit around it, and if the fuse-wire is disrupted the current will pass through the indicator and cause the lamp to glow.

The shell or case is formed or provided with an aperture $c^5$ through which the lamp may be observed, as shown in Figs. 1 or 2,

or the cylinder *c* may be composed of glass, or other translucent non-conducting material, as shown in Fig. 3, which, for the purpose of my invention will form the equivalent of the cylinder having the aperture.

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

1. An electric current indicator consisting of an insulated inclosing shell or case having an aperture and also having a pair of metallic caps at its opposite ends, an incandescent lamp and socket therefor contained in said shell or case, means for mechanically and electrically connecting said socket with one of said end caps, and means for electrically connecting it with the other end cap, substantially as described.

2. An electric current indicator consisting of an insulated inclosing shell or case having an aperture, and also having a pair of metallic caps at its opposite ends, an incandescent lamp and socket therefor contained in said shell or case, means for detachably connecting said socket with one of the end caps, a wire leading from said socket to the opposite end of the shell or case, and means for detachably connecting it with the other end cap, substantially as described.

3. An electric current indicator consisting of an insulated inclosing shell or case having an aperture and also having a pair of metallic caps at its opposite ends, an incandescent lamp and socket therefor contained in said shell or case, a screw extending from said socket through one of said end caps, and a nut thereon, a wire leading from the socket to the opposite end of the shell or case, a screw extending through the other end cap to which said wire is connected and a nut thereon, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANKLIN N. CONANT.

Witnesses:
B. J. NOYES,
L. H. HARRIMAN.