No. 809,978. PATENTED JAN. 16, 1906.

E. L. OGLE.

ELECTRIC SAFETY FUSE.

APPLICATION FILED MAY 25, 1904.

Fig. 1.

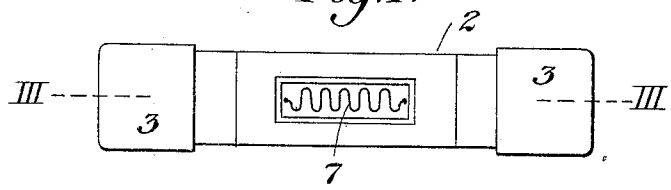


Fig. 11.

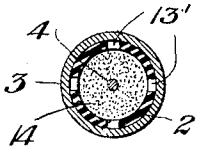


Fig. 2.

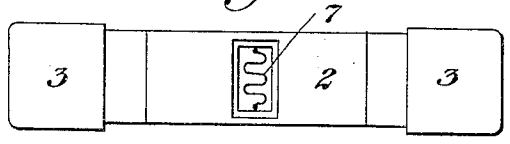


Fig. 9.

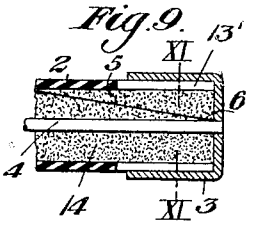


Fig. 12.

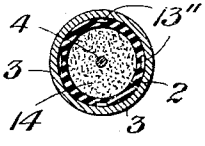


Fig. 3.

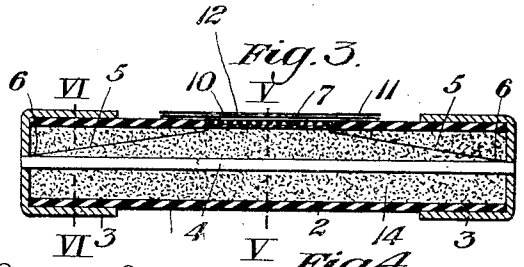


Fig. 10.

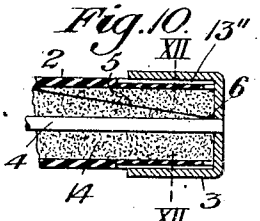


Fig. 4.

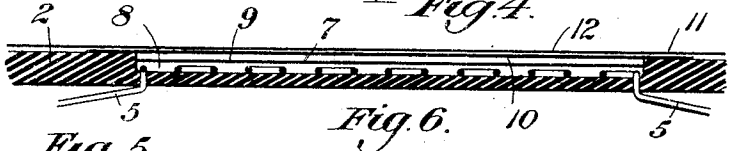
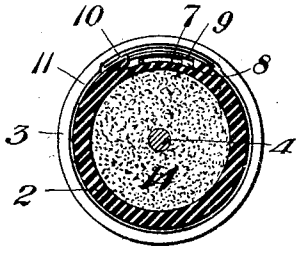


Fig. 6.

Fig. 5.



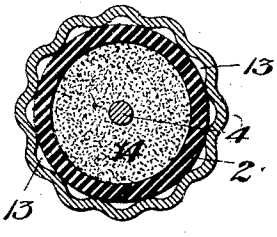


Fig. 7.

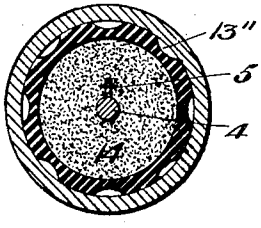
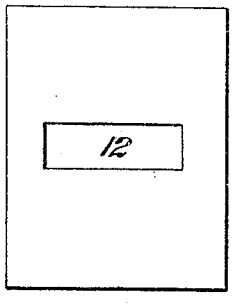


Fig. 8.



Witnesses:

Watson Page.

Chas. S. Fipley

Inventor:

Elmer L. Ogle

by O. M. Clarke

his Attorney.

UNITED STATES PATENT OFFICE.

ELMER L. OGLE, OF PERU, INDIANA, ASSIGNOR TO PERU ELECTRIC MANUFACTURING COMPANY, OF PERU, INDIANA, A CORPORATION OF INDIANA.

ELECTRIC SAFETY-FUSE.

No. 809,978. Specification of Letters Patent. Patented Jan. 16, 1906.

Application filed May 25, 1904. Serial No. 209,811.

To all whom it may concern:

Be it known that I, ELMER L. OGLE, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Electric Safety-Fuses, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved indicating-fuse complete. Fig. 2 is a similar view showing a modified arrangement of tally-fuse. Fig. 3 is a central longitudinal section on the line III III of Fig. 1. Fig. 4 is an enlarged sectional detail view showing the manner of locating and covering the tally-fuse. Fig. 5 is a cross-section on the line V V of Fig. 3. Figs. 6 and 7 are similar sections on the line VI VI of Fig. 3, showing different forms of ventilating-openings. Fig. 8 is a plan view of the surrounding inclosing paper wrapper laid out flat. Figs. 9 and 10 are partial sectional detail views of one end of the fuse, showing slotted ventilating-openings. Figs. 11 and 12 are cross-sections on the lines XI XI and XII XII of Figs. 9 and 10.

My invention relates to an improvement in the class of inclosed electric fuses or cut-outs; and it consists in providing such a fuse with means for indicating its condition merely by visual inspection, means for protecting the heat-affected medium, and also to an improvement in the filling or packing material, as well as to means incorporated with the shell, whereby I provide for escape of the gases in case of blowing out.

Referring now to the drawings, 2 is the shell of the fuse, provided with the usual contact ends 3 3, connected by an interior fuse 4 of suitable resistance for the objects in view.

5 5 are the ends of an auxiliary fuse connected at 6 to main fuse 4 and joined at or about the middle portion of the exterior of the shell to the tally-fuse 7, which is preferably crimped, bent, corrugated, or coiled, as indicated, to increase its exposed area and resistance.

The tally-fuse is exposed on the outside of the shell or laid in a suitable recess or countersink 8 therein and covered with a layer of paper 9, preferably saturated in a chemical or chemicals which will render it liable to be discolored by heat, as bicarbonate of sodium. This sheet of paper is covered by a sheet 10, of transparent material, as mica, which is retained in place in any suitable manner, as by a strip of paper 11, surrounding the shell, provided with a suitable opening 12 to expose the mica and chemical paper 9.

The casing or shell 2 is of any suitable non-combustible material, and at each end where it is inserted in the terminal caps 3 it is provided with longitudinal grooves or passages 13 for escape of gases generated in the interior when the main and auxiliary fuses are blown out or disrupted. These grooves 13 may be provided in various ways, as by crimping the end caps, as shown in Fig. 6, whereby inner longitudinal cavities are produced, or they are made by entirely slotting through the walls of the cartridge at the ends, as at 13′, Fig. 9, or by partially slotting through, as at 13″, Fig. 10. In either construction the desired result is secured and means provided for exit of the gases of combustion.

The interior of the casing is filled with suitable packing substance 14 of carbon, as lampblack or alabastine (gypsum) or of a mixture of these, in a powdered or comminuted condition, which substances are non-combustible and good absorbents of gases.

When the main fuse is blown out, the auxiliary fuses and also the tally-fuse 7 are likewise blown out, thus charring or discoloring the chemical paper 9, which will thus indicate that the main fuse has blown.

The advantages of my invention will be appreciated by all those familiar with this class of devices. It is very compact, safe, highly efficient, and durable and serves to immediately indicate the condition of the fuse, requiring no other than external inspection, while the transparent mica covering entirely prevents danger of external combustion arising from the blowing of the fuse.

What I claim is—

1. An electric fuse consisting of an inclosing case provided with a main fuse connected with the terminals of the case, an auxiliary fuse connected to the main fuse, a layer

of paper saturated in a sensitive chemical material adapted to be discolored upon blowing of the fuse, the auxiliary fuse being in contact therewith, and a covering of transparent material, substantially as set forth.

2. An electric fuse consisting of an inclosing case provided with a main fuse connected with the terminals of the case, an auxiliary fuse connected to the main fuse at each end and having an intermediate corrugated portion, a layer of paper saturated in a sensitive chemical material adapted to be discolored upon blowing of the fuse, the corrugated portion of the auxiliary fuse being in contact therewith, and a covering of transparent material, substantially as set forth.

3. An electric fuse consisting of an inclosing case provided with a main fuse connected with the terminals of the case, an auxiliary fuse connected to the main fuse, a layer of paper saturated in a sensitive chemical material adapted to be discolored upon blowing of the fuse, the auxiliary fuse being in contact therewith, and a covering of transparent material, with an outer wrapping device having a corresponding sight-opening, substantially as set forth.

4. An electric fuse consisting of an inclosing case provided with a main fuse connected with the terminals of the case, an auxiliary fuse connected to the main fuse, a portion of said auxiliary fuse being in contact with a layer of paper saturated with bicarbonate of sodium, with a covering of mica, substantially as set forth.

5. An electric fuse consisting of an inclosing case, provided with a main fuse connected with the terminals of the case, an auxiliary fuse connected to the main fuse, a portion of said auxiliary fuse being in contact with a layer of paper saturated in bicarbonate of sodium, with a covering of mica, and an outer wrapping having an opening adapted to correspond therewith, substantially as set forth.

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

ELMER L. OGLE.

Witnesses:

CRETA FLETCHER,

ALPHA H. KLING