C. E. EVELETH.

SUBMERGED FUSE.

APPLICATION FILED MAY 4, 1905.

919,563.

Patented Apr. 27, 1909.

Fig. 1.

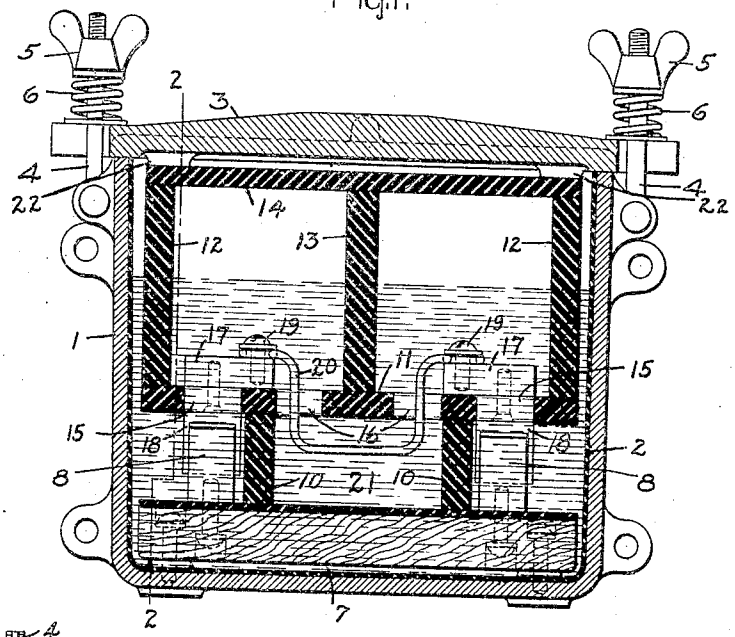


Fig. 2.

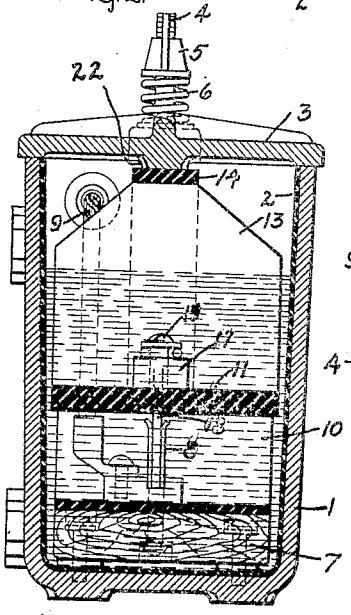
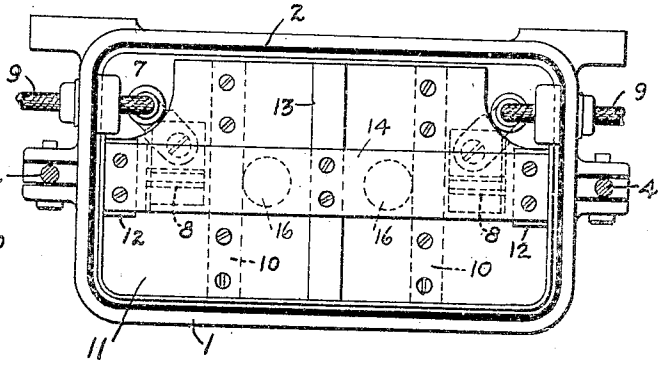


Fig. 3.



WITNESSES:

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES E. EVELETH, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

SUBMERGED FUSE.

No. 919,563. Specification of Letters Patent. Patented April 27, 1909.

Application filed May 4, 1905. Serial No. 258,886.

To all whom it may concern:

Be it known that I, CHARLES E. EVELETH, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Submerged Fuses, of which the following is a specification.

This invention relates to thermal cut-outs for electrical circuits, and its object is to provide a fuse of the submerged type for carrying high tension currents, which utilizes the expansion of the gases produced by the melting of the fuse to project a stream of oil (or whatever fluid the fuse is immersed in) across the fuse terminals, so as to quickly extinguish the arc.

The invention consists of the combination with a suitable vessel or receptacle for the oil or other fluid, of a baffle plate therein, fuse terminals on one side of said baffle, and a fuse attached to said terminals and led through holes in said barrier. When the fuse blows, the oil is expelled through said holes in streams which quickly cut off the arc.

In the accompanying drawing, Figure 1 is a vertical longitudinal section of a structure embodying my invention; Fig. 2 is a vertical cross section of the same on the line 2—2, Fig. 1; and Fig. 3 is a top plan view with the lid removed.

The vessel, receptacle or tank 1 is of any suitable material, preferably cast iron. It has a lining 2 of insulating material, and is provided with a lid 3 held down by yielding fastenings, such, for instance, as the hinged bolts 4, thumb nuts 5 and the springs 6 interposed between said nuts and the lid.

On the bottom of the tank rests a base plate 7 preferably of wood, on which are mounted the clips 8 to which are connected the insulated conductors 9 which pass out through the walls of the tank near its top. On the base plate are two upright transverse partitions 10, located between the terminal clips 8. On these partitions rests a horizontal baffle plate 11, whose edges are adjacent to the walls of the tank; being cut away at two corners to permit the conductors 9 to pass by it. At each end of the barrier is an upright wall 12, and at its middle an upright partition 13. A top bar 14 rests on the walls 12 and the partition 13. In the baffle plate are four openings, those numbered 15 being above the clips and those numbered 16 being between each partition 10 and the middle partition 13. Resting on the baffle plate above each hole 15 is a block 17 to which is secured a blade 18 passing down through said hole into the clip 8 below. The block carries a binding screw 19 by means of which one end of the fuse 20 is fastened thereto. The fuse depends through the holes 16; the bight of it being contained in the chamber 21 formed by the partitions 10 and the baffle plate.

The lid 3 is provided on its under surface with depending lugs 22, which engage the upper surface of the top bar 14, so that the closing of the lid operates to clamp the baffle plate 11 firmly in position against the expulsive action of the fuse at the time of disruption. The springs 6, which bear down upon the top of the lid, act as a yieldable means to permit the air and gases within the box to escape upon excessive rise in pressure thereof.

The operation is as follows: The parts being in the position shown, if the fuse blows, the expanding gases force the oil from the chamber 21 up through the holes 16, and these streams of oil shooting past the binding screws quickly cut off the arc at these points and extinguish it.

While I have shown and described the baffle plate as being arranged horizontally, with the fuse depending below it, yet it is evident that this arrangement is not essential, and that other modes of carrying out the invention are possible.

What I claim as new, and desire to secure by Letters Patent of the United States, is,—

1. A fuse submerged in liquid, and means for directing the liquid in a stream past the fuse ends upon blowing of the fuse.

2. A fuse submerged in liquid, and means for causing the gases produced by the blowing of the fuse to force the liquid to stream past the fuse ends.

3. The combination with a tank, a liquid therein, a fuse submerged in said liquid, a baffle plate in said tank below the surface of the liquid and interposed between the fuse terminals and the body of the fuse.

4. The combination with a tank, liquid therein, a fuse submerged in said liquid, and a baffle plate having holes through which said fuse passes adjacent its terminals.

5. The combination with a tank, liquid therein, a submerged baffle plate having

holes, fuse terminals on one side of said plate, and a fuse located mainly on the other side of said plate and having its ends passed through said holes and attached to said terminals.

6. The combination with a tank, liquid therein, a fuse submerged in said liquid, and a baffle plate dividing said tank beneath the surface of the liquid and provided with apertures through which the fuse passes to its terminals.

7. The combination with a tank, of a submerged fuse therein, a base plate, upright partitions thereon, and a baffle plate resting on said partitions and having holes through which said fuse depends into the space between said partitions.

In witness whereof I have hereunto set my hand this 2nd day of May, 1905.

CHARLES E. EVELETH.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.