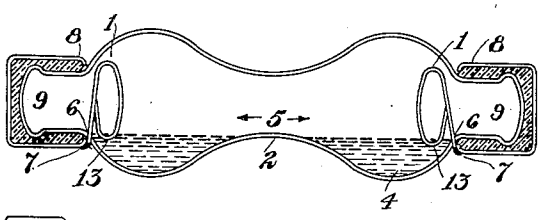
F. W. ADSIT.

LIGHTNING ARRESTER.

APPLICATION FILED DEC. 4, 1916.

1,288,460. Patented Dec. 24, 1918.

Fig. 1



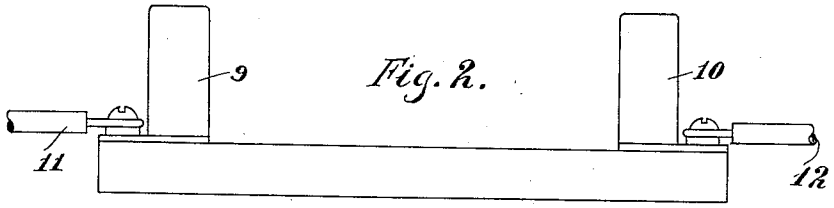


Fig. 2.

Fig. 3.

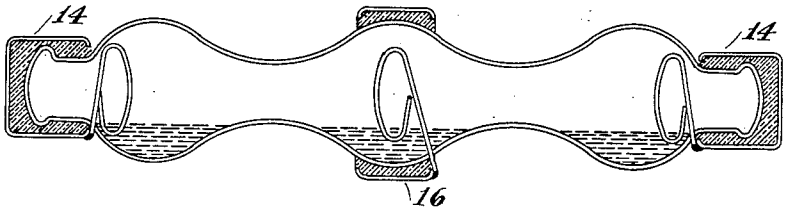
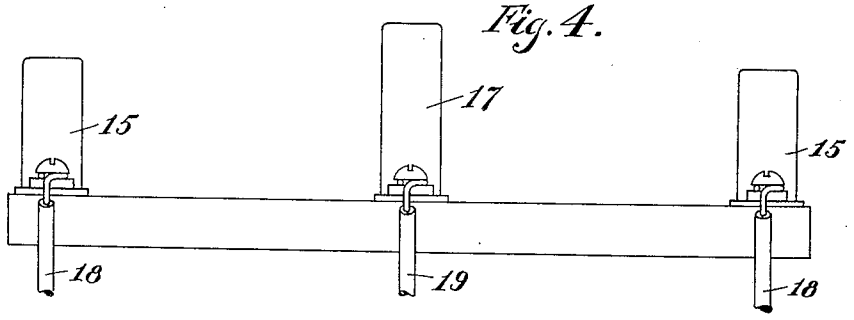


Fig. 4.



Inventor:
Frank W. Adsit.
by C. D. Enochs
Attorney.

UNITED STATES PATENT OFFICE.

FRANK W. ADSIT, OF CHICAGO, ILLINOIS.

LIGHTNING-ARRESTER.

1,288,460. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed December 4, 1916. Serial No. 135,268.

To all whom it may concern:

Be it known that I, FRANK W. ADSIT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lightning-Arresters, of which the following is a specification.

This invention relates to lightning arresters, and particularly to that kind of lightning arresters where means are provided for maintaining an arc between the two points on the circuit that the arrester is designed to protect.

One object of my invention is to provide in a lightning arrester means for having the gap in the arrester of considerable length.

Another object of my invention is to provide in a lightning arrester having a gap of considerable length means for maintaining an arc in said gap under certain voltage and amperage conditions.

Another object of my invention is to provide in a lightning arrester means for making a path of low resistance across the arrester under break-down conditions, that will be self-cleansing as soon as the break-down conditions are ended.

Another object of my invention is to provide a lightning arrester that may be readily mounted and be accessible and easily replaced in its mounting.

With these and incidental objects in view the invention consists of certain novel features of construction and combination of parts, the essential elements of which are set forth in appended claims and a preferred form of embodiment of which is hereinafter described with reference to the drawing which accompanies and forms a part of this specification.

In the drawing, Figure 1, discloses a longitudinal section of my invention with the wire loops 1 forming a contact member shown in full. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal section of an alternate construction, and Fig. 4 is a side elevation of the same.

The arrester case is preferably made in the form of a glass bulb, although other material may be used, and is shaped in such fashion that mercury or other suitable material will settle to points as at 3 and 4, with a predetermined gap 5 between the two mercury elements.

The loops 1 are in a plane substantially at right angles to the axis of the bulb and are so arranged as to always make contact with the mercury as at 13, no matter what position the bulb 2 may be turned about its longitudinal axis. The ends of the wire loops 1 sealed through the glass as at 6 are brought out and soldered to metal caps 7, which are firmly secured to the case 1 by cementing with gypsum plaster, or other suitable material, the cap 7 being preferably turned down as at 8 and the bulb being provided with an extension flange 9 to make the joint more secure.

The construction as shown in Fig. 1 allows the arrester to be readily placed in a fuse block, such as disclosed in Fig. 2, which is of ordinary construction and consists of a pair of spring clips 9 and 10 at each end of the fuse blocks to receive the caps 7, thus allowing a circuit to be led through from the points 11 and 12 to receive protection from the arrester.

The bulb 2 with the mercury therein is preferably partially exhausted of air so that a voltage abnormal to the circuit will readily break down the gap 5, and if the current is of any considerable volume the mercury will form an arc across the gap 5, thus placing a short circuit across terminals 11 and 12, and in general practice one of the points 11 or 12 will be grounded.

Fig. 3 discloses another form of my improved arrester in which the caps 14 are adapted to be received by the spring clips 15, and the central ring 16 to be received by the spring 17, so that two sides of a metallic circuit may be brought to the arrester through wires, such as 18, and the wire 19 grounded.

This allows a full protection to both sides of a metallic circuit, causing a temporary ground under conditions of abnormal voltage on either side of the line, and as the ground through the mercury vapor will be of low resistance the line within will be thoroughly protected from the abnormal voltage, as all current will be led through this low resistance to the ground.

While I have described my invention and illustrated it with the drawing herewith, I

do not wish myself to be understood as confining myself to the particular construction shown, as it is evident that my invention may be embodied in various ways within the scope of the following claims.

Claims:

1. In a lightning arrester the combination of a substantially dumb-bell shaped bulb, a terminal cap at either end of said bulb, a terminal loop substantially circular located at either end of the interior of said bulb, and one set of loops connecting with each terminal cap, mercury within said bulb of such amount in respect to the size of the bulb, that when said bulb is positioned horizontally a portion of mercury will settle at either end, making contact with either loop, and having a substantial air gap between the two portions of said mercury.

2. In a lightning arrester the combination of a case having a substantially round enlarged portion on each end, and a third substantially round portion intermediate of said ends, terminal loops in each of said enlarged portions, said loops being in a plane substantially at right angles to the longitudinal axis of said case, exterior circular terminals connecting with said terminal loops within said case, liquid within said case of such amount in respect to size of said case and said enlarged portions thereof, that when said case is positioned horizontally said liquid will divide into three separate portions, one in each of said enlargements of said case and make contact with the terminal loops in said enlargements, said liquid being readily vaporized by an electric arc into a low resistance vapor.

FRANK W. ADSIT.