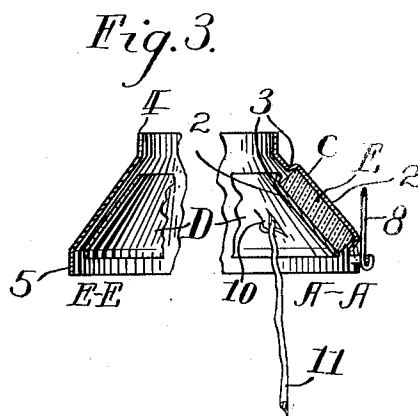
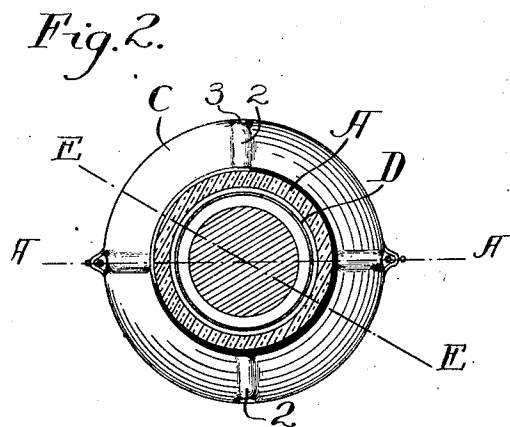
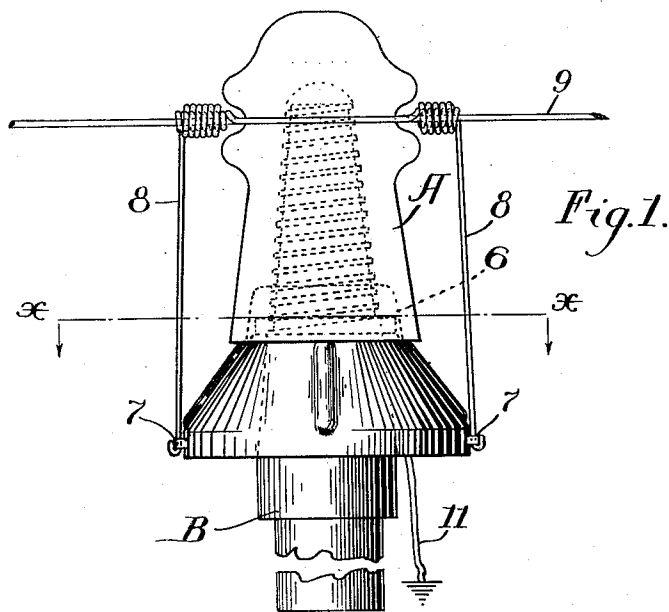


A. R. RHEINBERGER.
 LIGHTNING ARRESTER.
 APPLICATION FILED MAR. 29, 1909.

991,749.

Patented May 9, 1911.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFONSO R. RHEINBERGER, OF ST. PAUL, MINNESOTA.

LIGHTNING-ARRESTER.

991,749.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed March 29, 1909. Serial No. 486,478.

To all whom it may concern:

Be it known that I, ALFONSO R. RHEINBERGER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Lightning-Arresters, of which the following is a specification.

My invention relates to improvements in lightning arresters and more particularly to that class which is adapted for pole line service.

This invention is an improvement upon the construction set forth in my application for Patent Serial No. 456,627 filed October 7, 1908.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation of my invention a detail of a cross arm pin being shown; Fig. 2 is a section of Fig. 1 taken on the line X—X; and Fig. 3 is a vertical section of a detail of the two electrodes when assembled, the left hand portion being taken upon the plane E—E and the right hand portion upon the plane A—A of Fig. 2.

In the drawings A represents an insulator made of glass or other suitable insulating material and B a pin which is of ordinary construction and made out of wood or other suitable material and upon which said insulator is threaded in the usual manner.

My improved lightning arrester parts comprise a pair of outer and inner frusto-conical shells C and D and a plurality of space insulators E in the form of short pencils made of glass, porcelain or other suitable material which are placed between said shells to hold them a short distance apart. The outer shell C is adapted to form the line electrode of the lightning arrester and the inner shell the ground electrode. The spacing elements E are held between the electrodes by suitable indents 2 which are formed by denting the shells of the electrodes, shoulders 3 being left to prevent the pencils from sliding longitudinally out of their seats. The upper and lower extremities of the outer shell C are formed with vertical collars 4 and 5 the former being adapted to slip into the opening 6 within the petticoat of the insulator and the latter being provided with outwardly bent loops 7 which are adapted to be engaged by vertical tie wires 8 depending from the line wire 9 which is secured to the insulator and

adapted to be protected by the lightning arrester. The ground electrode is formed with a loop 10 to which the ground wire 11 is adapted to be fastened. The tie wires 8 and ground wire 11 can be soldered or otherwise fastened to the electrodes when desired.

In use the electrodes can be easily and quickly adjusted in place by passing the same over the pin and screwing the insulator home. After the line wire has been secured to the insulator, the tie wires can be dropped and secured to the loops 7 to support the parts of the lightning arrester in place. The ground wire 11 is then connected with the inner electrode. It will be noted that the shoulders 3 on the inner electrode not only serve to hold the space pieces 2 between the electrodes but also support the inner electrode and prevent it from being detached when in use. All charges of atmospheric electricity are dissipated into the ground from the line conductor by jumping across the gap between the outer and inner electrodes C and D.

The construction of the lightning arrester above described, is very simple and inexpensive and the parts thereof are easily and quickly renewable. The large effective surface on the electrodes is found to be a great advantage in use by dissipating all discharges of atmospheric electricity into the ground and the outer electrode being constructed in the shape described, acts as an efficient and effective water shed to protect short circuiting between the electrodes during damp and wet weather. The upper collar 4 serves to prevent water creeping up over the outer electrode and coming into contact with the inner electrode and the lower collar 5 also protects the inner electrode in the same way.

In accordance with the patent statutes I have described the principles of operation of my invention together with apparatus which I now consider to represent the best embodiment thereof but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

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

1. The combination with an insulating pin, an insulator, mounted thereon and a

line wire supported by said insulator, a pair of electrodes comprising superimposed frusto-conical shells having coinciding recesses, insulating elements seated in said recesses and serving to space said electrodes apart and hold them in position and supports depending from said line wire and attached to said electrodes.

2. The combination with an insulating pin, an insulator mounted thereon having a petticoat and a line wire supported by said insulator, a pair of electrodes comprising superimposed frusto-conical shells C and D having coinciding recesses 2, means comprising pencil insulators seated in said recesses and serving to space said shells apart and hold them adjacent to each other, a pair of wires secured to the line wires and attached to the outer electrode to support said electrodes below the petticoat of said insulator and a ground wire 11 connected with the inner electrode, for the purposes specified.

3. In apparatus of the class set forth, an insulator, a pin on which said insulator is mounted, a line wire secured to said insulator, a pair of superimposed electrode shells having recesses, insulators in said recesses and upon which said shells are mounted to form a unit, and a hanger secured to said line and unit for supporting the latter and making electrical connection between them.

4. In apparatus of the class set forth, an insulator, a pin on which said insulator is mounted, a line wire secured to said insulator, a pair of superimposed electrode shells spaced apart and having recesses, and insulators in said recesses and upon which said shells are mounted to form a unit.

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

ALFONSO R. RHEINBERGER.

Witnesses:

JULE DONOVAN,
F. G. BRADBURY.