

G. H. RUPLEY.
HIGH POTENTIAL INSULATOR.

(Application filed June 13, 1901.)

(No Model.)

Fig. 1.

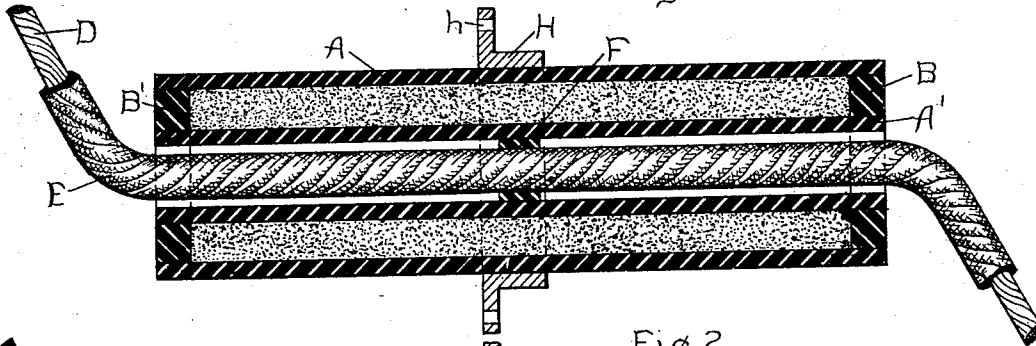


Fig. 2.

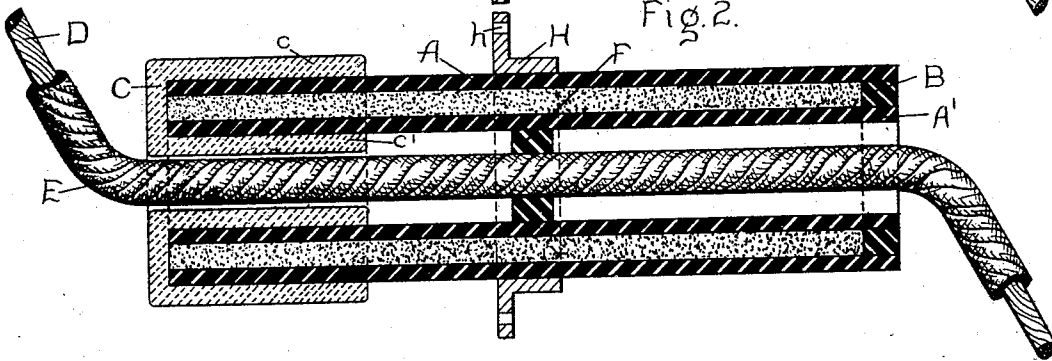
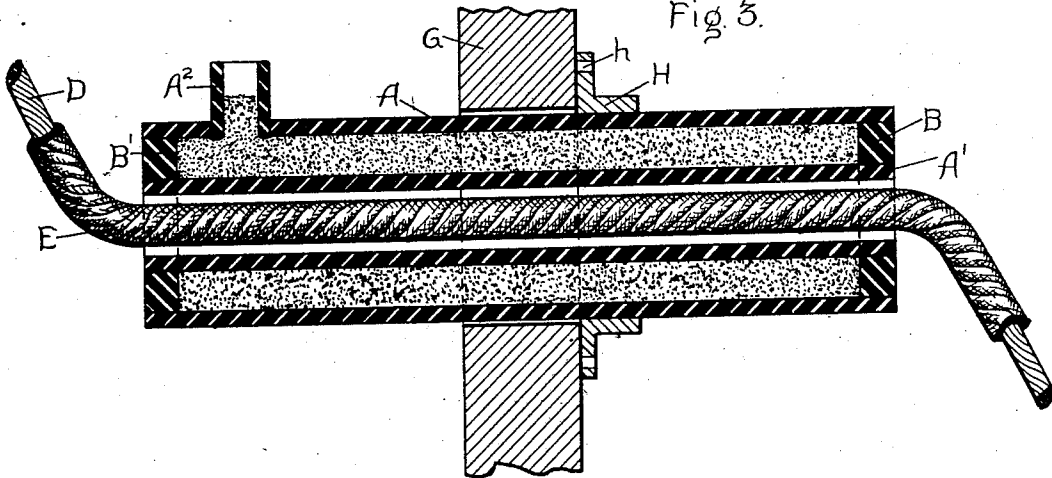


Fig. 3.



Witnesses.

Robert L. Chapman
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Inventor.

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by *Albert S. Davis*
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UNITED STATES PATENT OFFICE.

GEORGE H. RUPLEY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

HIGH-POTENTIAL INSULATOR.

SPECIFICATION forming part of Letters Patent No. 715,875, dated December 16, 1902.

Application filed June 13, 1901. Serial No. 64,468. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. RUPLEY, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in High-Potential Insulators, (Case No. 1,814,) of which the following is a specification.

This invention relates to insulators for electric conductors, and especially those conveying currents of high potential, the object being to prevent any leakage of current or the establishment of a destructive arc between the conductor and the line-support, wall, or other object near or through which the conductor passes.

Insulators as commonly constructed are made of a single piece of rigid insulating substance—such, for example, as glass or rubber—with a comparatively short distance between the wire and its support. I form the insulator itself of a compound structure, in which a rigid insulating substance is used as the framework and the filling or body portion is formed of a filled-in material, which may be of relatively much higher insulating power, and I form the insulator into such a shape that the superficial distance between the conductor and the support is very much increased. Surface-leakage, particularly with currents of high potential, is the occasion of frequent difficulty, permitting the currents, particularly in damp weather or when moisture is present on the surface of the insulator, to leak easily across from the conductor to the support. I make the insulator of tubular form and preferably support the conductor within it, so that it is attached to the surface or wall of the insulator at a central point, the support engaging the outside of the tubular insulator also at a central point. Thus a maximum superficial distance is produced between the two and leakage is much more efficiently prevented.

In the accompanying drawings, Figure 1 is a longitudinal section of an insulator embodying my improvements. Figs. 2 and 3 show modifications of the same.

The insulator has a tubular body with double walls, the annular space between said

walls being filled with some suitable solid or liquid substance of high insulating power. The body is preferably made up of two concentric tubes A A' of some hard rigid insulating material, such as wood, hard rubber, fiber, porcelain, or the like. The annular space between them is closed at one end by an annular washer B of similar insulating material. The space is then filled with some softer insulating substance, such as oil, asphalt, resin, mica compound, or the like. The open end of the annular chamber is then closed, either by an annular insulating-washer B', as in Figs. 1 and 3, or by an annular cap C, of porcelain or the like, with double flanges C C' fitting outside and inside the body of the insulator, as shown in Fig. 2. If a liquid or semiliquid hydrocarbon or other filling substance is used which expands and contracts with changes of temperature, a relief-vent may be provided, such as a spout A², projecting from the upper side of the body and opening to the atmosphere, so that the filling substance can rise and fall in said spout without danger of bursting the tubes A A'.

The line conductor D passes through the tube A', which is preferably of considerably greater diameter than the conductor, so as to afford a body of air between the conductor and the tube, and thus add to the dielectric value of the insulator. The conductor is preferably wrapped with insulating-tape E where it traverses the insulator. If desired, the conductor may be supported in an axial position in the tube A' by suitable rests, such as a washer F of insulation, and this is the more desirable construction in that any surface-leakage must traverse the distance from the central rest or support to the end of the tube and across the end walls of the same and again across the outer end of the tube to the support.

The insulator may be secured to a pole, wall, or other support G in any desired manner, as by means of a flanged ring H, closely encircling the body of the insulator and provided with holes h for screws.

This insulator is built as an insulation-resistance of from one hundred and ten thou-

sand to one hundred and twenty thousand ohms.

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

1. A high-potential insulator, consisting of two concentric tubes of insulating material with an annular space between them, and a filling of insulating material containing a hydrocarbon in said space.

2. A high-potential insulator, consisting of two concentric tubes of insulating material with an annular space between them, an insulating-washer closing said space at one end, a filling of insulating material containing a hydrocarbon in said space, and means for closing the other end of said space.

3. A high-potential insulator, consisting of two concentric tubes of insulating material with an annular space between them, a filling of liquid or semiliquid insulating material in said space, and means for relieving the

pressure due to the expansion and contraction of said filling.

4. The combination with the outer tube A having a spout A², of the inner tube A', end washers B, B', and a filling of insulating material between said tubes.

5. An insulator comprising a tubular structure of insulating material having the conductor and support engaging the same at central points of the outside and inside of the tubular structure respectively.

6. A high-potential insulator composed of a double-walled hollow tube filled with an insulating compound and connected to the conductor and support respectively at central points on the inside and outside.

In witness whereof I have hereunto set my hand this 12th day of June, 1901.

GEORGE H. RUPLEY.

Witnesses:

BENJAMIN B. HULL,
FRED RUSS.