No. 836,122. PATENTED NOV. 20, 1906.

F. M. LOCKE.

HIGH POTENTIAL INSULATOR.

APPLICATION FILED MAR. 23, 1903.

FIG. 1.

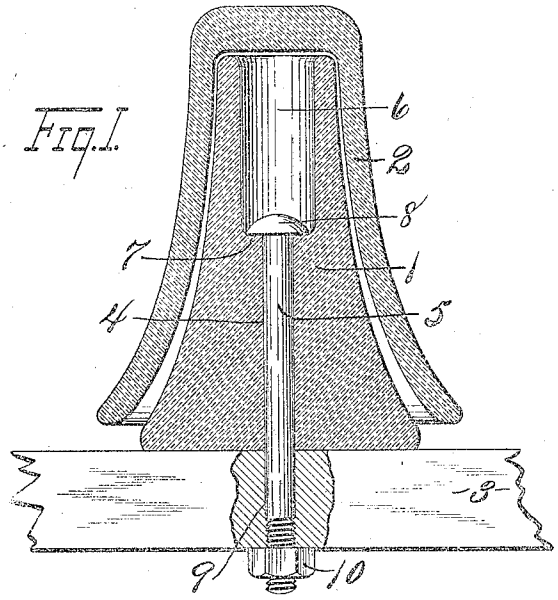
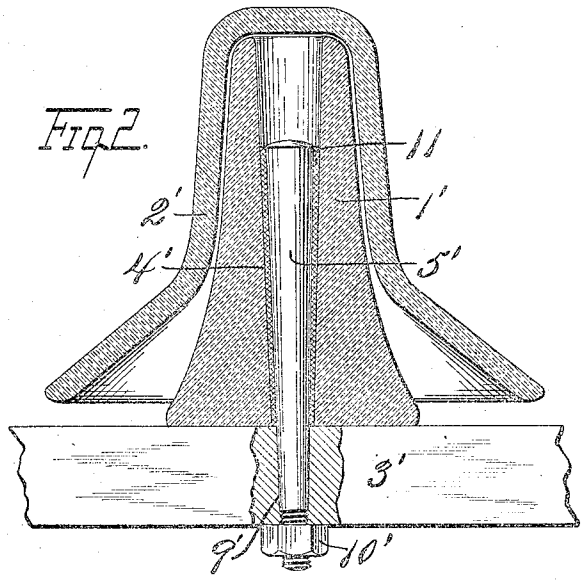


FIG. 2.



WITNESSES,

B. E. Robinson

F. E. Arthur,

INVENTOR,

Fred M. Locke

BY

Howard P. Denison

ATTORNEY.

UNITED STATES PATENT OFFICE.

FRED M. LOCKE, OF VICTOR, NEW YORK.

HIGH-POTENTIAL INSULATOR.

No. 836,122. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed March 23, 1903. Serial No. 149,124.

To all whom it may concern:

Be it known that I, FRED M. LOCKE, of Victor, in the county of Ontario, in the State of New York, have invented new and useful Improvements in High-Potential Insulators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in high-potential insulators and fastening means therefor, and refers more particularly to that class in which a center insulating-sleeve is held to the cross-arm by a clamping-bolt anchored within the sleeve and clamped to the cross-arm.

The primary object of this invention is to anchor the head of the bolt wholly within the body of the sleeve for the purpose of increasing the arcing-space between the bolt and the electric conductor, which may be secured to the insulator. These insulators are adapted to support the conductors for high-voltage electric currents; and my object, therefore, is not only to guard against the puncturability of the insulators, but also to prevent the leakage of part of the current to the cross-arm or anchoring-bolt.

In the drawings, Figure 1 is a transverse vertical sectional view of an insulator, a cross-arm, and a clamping-bolt for securing the insulator to the cross-arm. Fig. 2 is a transverse vertical sectional view of a slightly-modified form of insulator and fastening means therefor.

Similar reference characters indicate corresponding parts in both views.

In carrying out the objects of this invention I have shown a porcelain insulator composed of an inner hollow center piece or sleeve 1 and an outer bell-shape section 2, the inner section being mounted upon a cross-arm 3 and is provided with a lengthwise aperture 4 for receiving a clamping-bolt 5.

The aperture 4 of the sleeve 1 is enlarged at its upper end for forming a socket 6 and a shoulder 7, the socket 6 opening from the outer end of the sleeve 1 and extending inwardly a considerable distance from said outer end, so as to form a considerable arcing-space between the conductor and bolt 5.

The clamping-bolt 5 is arranged in the aperture 4, and its outer end is provided with a head 8, which engages the shoulder 7 at the base of the socket 6, while the other end of the bolt 5 is passed through an aperture 9 in the cross-arm and is threaded for receiving a clamping-nut 10, engaging the opposite face of the cross-arm, whereby when the nut is screwed in one direction the insulating-sleeve 1 is drawn into engagement with the cross-arm and held from endwise or lateral movement.

In Fig. 2 I have shown an insulator composed of an inner sleeve 1′ and an outer section 2′, the inner sleeve resting upon a cross-arm 3′ and is provided with a lengthwise-tapering opening 4′, which gradually increases in diameter from its inner end adjacent to the cross-arm toward the outer end for receiving a tapering clamping-bolt 5′, which also increases in diameter from its inner end adjacent the cross-arm outwardly for the purpose of forming an enlarged head to hold the insulator-sleeve 1′ in position when the bolt is clamped to the cross-arm 3′.

The outer end or head of the bolt terminates a considerable distance within the outer end of the sleeve 1′, so as to remove it as far as possible from the conductor, (not shown,) and thereby prevent the arcing of the current from the conductor to said bolt or shaft.

The outer tapering end of the bolt or shaft 5′ within the socket 4′ is surrounded by a suitable cement or filling 11, which serves to secure the adjacent parts together, while the lower end of the bolt or shaft extends through an aperture 9′ in the cross-arm 3 and is threaded to receive a clamping-nut 10′, whereby the bolt or shaft is drawn endwise, and thereby clamps the insulator-sleeve 1 firmly upon the cross-arm.

The center piece (shown in Figs. 1 and 2) is also bell shape, except that the center-bolt opening extends entirely therethrough from top to bottom, so that the exterior diameter of the lower end of this center piece is greater than that of its upper end, while the interior diameter of the upper end is greater than that of its lower end, and in both instances the upper end of the bolt terminates some distance below the upper end of the center piece for the purpose of establishing an arcing-space between the head of the bolt and the conductor, which may be attached to the outer sleeve, as 2 or 2′.

The object of flaring the bases of the insulator-sections outwardly from top to bottom is to neutralize as far as possible the static

discharge from the conductor to prevent any injurious effects upon the cross-arm or insulator-pin and also to prevent short circuits between the conductor and fastening-bolt for the insulator.

It is now apparent that the lower portions of each of the bolt-openings 4 and 4′ are smaller than their upper portions and that the upper end of the bolt is larger than the lower end of the opening through which it passes, while the diameter of the upper end of the bolt-opening is equal to or greater than the upper end of the bolt, so that the head of the bolt is sunk some distance beneath the upper end of the center piece, but is prevented from being drawn through the lower end of the bolt-opening.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A high-potential insulator having a center piece of porcelain formed with a central tapering opening which is smaller at the bottom than at the top, in combination with a tapering bolt in the opening and having its upper end smaller than the upper end, but larger than the lower end of said opening, whereby the bolt is removable from one end only of the opening and wedges in the opposite end.

In witness whereof I have hereunto set my hand this 5th day of March, 1903.

FRED M. LOCKE.

Witnesses:

MILDRED M. NOTT,

HOWARD P. DENISON.