

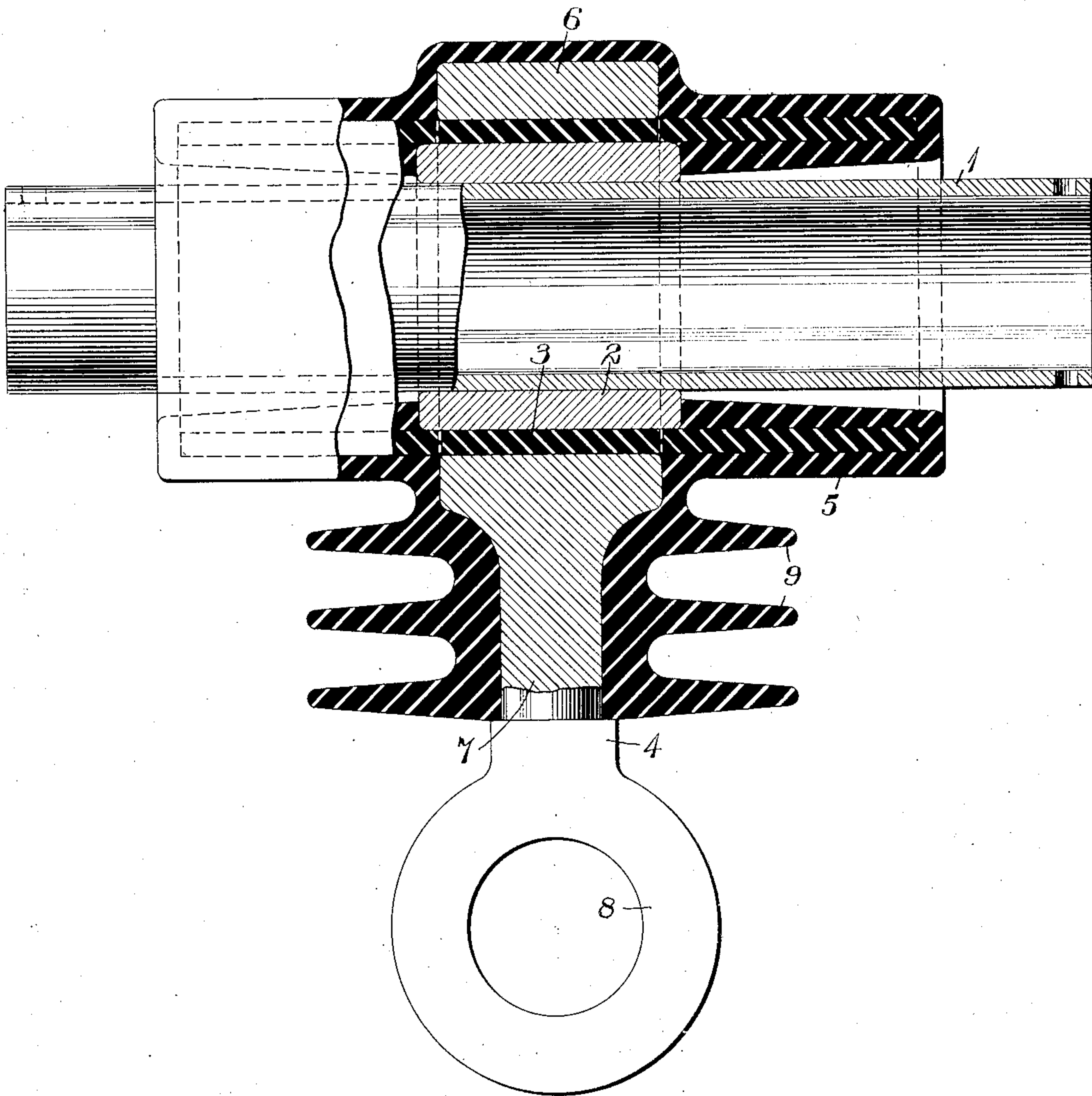
No. 861,064.

PATENTED JULY 23, 1907.

T. VARNEY & C. AALBORG.

STRAIN INSULATOR.

APPLICATION FILED JUNE 4, 1906.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

THEODORE VARNEY, OF PITTSBURG, AND CHRISTIAN AALBORG, OF WILKINSBURG, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY A CORPORATION OF PENNSYLVANIA.

## STRAIN-INSULATOR.

No. 861,064.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed June 4, 1906. Serial No. 320,142.

*To all whom it may concern:*

Be it known that we, THEODORE VARNEY and CHRISTIAN AALBORG, citizens of the United States, and residents, respectively, of Pittsburg and of Wilkesburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Strain-Insulators, of which the following is a specification.

Our invention relates to strain insulators for electric lines and it has for its object to provide a device of this character that shall be simple and durable in construction and that shall be specially adapted for use with relatively high voltage lines.

In the construction of relatively high voltage electric lines, it is often desirable to employ strain insulators, and considerable difficulty has heretofore been experienced in attempting to provide sufficient mechanical strength and at the same time to insure an adequate electrical separation between the line and the ground.

The single figure of the accompanying drawing is a view partially in elevation, but mainly in section, of a strain insulator constructed in accordance with our invention.

Referring to the drawing, the insulator illustrated, comprises a rod or tube 1, preferably of iron, a collar 2 which is fitted onto the rod 1, an insulating tube 3, an eye ring 4 and an insulating envelop or casing 5 of any suitable composition that may be molded into the desired shape.

The insulating tube 3 is of materially greater length than the collar 2 over which it is fitted, the collar being located substantially in the center of the tube. The eye ring 4 comprises a collar portion 6 which is fitted over the insulating tube 3 directly outside the collar 2, and a projection 7 the extremity of which may be formed into a ring 8, as illustrated, or may be caused to assume any other convenient shape, such as a hook, to which a line conductor, a cable or a rope may be attached.

Although the insulating tube 3 is relatively thin so that the direct distance between the inner collar 2 and the outer collar 6 is inconsiderable, if it is formed of compressed layers of sheet fabric, mica and varnish or shellac, it will resist relatively high voltage strains, and the possibility of electrical leakage around its ends is reduced to a minimum by reason of the length of the tube.

In order to protect the insulator from the weather and to still further guard against electrical leakage, the envelop or casing 5 of molded insulating material, is provided, which completely surrounds the exposed por-

tions of the insulating tube 3 both inside and outside, and a corrugated sleeve projection 9 surrounds the projection 7.

The portions of the molded insulator which extend inside the tube 3 are relatively thin so that they avoid engagement with the metal rod or tube 1. In this way, it is possible to remove the collar 2 from the rod without destroying the molded insulator and, furthermore, bending strains to which the rod or tube 1 may be subjected, will not affect the envelop 5.

We desire that variations which do not depart from the spirit of our invention shall be included within its scope.

We claim as our invention:

1. An insulator comprising an inner ring, an insulating tube of materially greater length than the ring and fitted over it, an outer ring fitted over the tube around the first ring and having a strain projection, and a molded insulating casing surrounding the exposed surface of the tube and the adjacent portion of the strain projection, and having an internal diameter greater than that of the inner ring.

2. A strain insulator comprising a supporting tube, a collar closely fitting the middle portion thereof, an insulating tube fitted over the collar and projecting beyond its ends, a ring closely fitting the middle portion of the insulating tube and having a looped projection and a molded insulating casing for the ring and the insulating tube the internal diameter of which is greater than that of the collar.

3. A strain insulator comprising a relatively long insulating tube, a collar located in the middle of the tube and closely fitted therein, an eye band fitted around the middle of the tube, and a molded insulating sheath which surrounds the eye band and the exposed portions of the tube and engages and is of less internal diameter than the collar.

4. A strain insulator comprising a metal cylindrical member, a collar surrounding said member, an insulating tube of materially greater length than the collar and fitted thereon, a strain ring fitted over the tube around the collar, and a molded insulator which surrounds the exposed parts of the insulating tube and makes no contact with the metal tube.

5. A strain insulator comprising a metal cylindrical member, a collar fitted onto the middle of said member, an insulating tube fitted over the collar and projecting beyond its ends out of contact with the cylindrical member, and an eye ring fitted upon the insulating tube.

In testimony whereof, we have hereunto subscribed our names this 24th day of May, 1906.

THEODORE VARNEY.  
CHRISTIAN AALBORG.

Witnesses as to Theodore Varney:

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