

T. VARNEY.
STRAIN INSULATOR.
APPLICATION FILED JAN. 10, 1908.

937,897.

Patented Oct. 26, 1909.

Fig. 1.

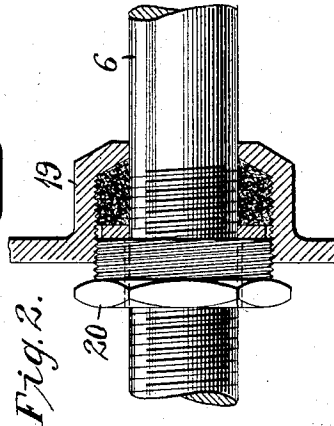
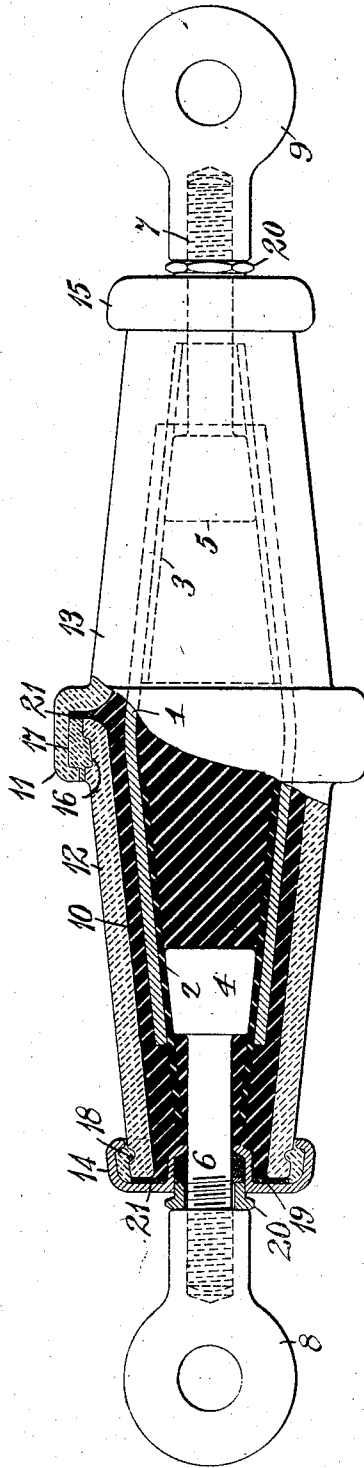


Fig. 2.

WITNESSES:
Fred H. Miller
R. J. Pearson

INVENTOR
Theodore Varney
BY
Kelley & Coan
ATTORNEY

UNITED STATES PATENT OFFICE.

THEODORE VARNEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

STRAIN-INSULATOR.

937,897.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed January 10, 1908. Serial No. 410,229.

To all whom it may concern:

Be it known that I, THEODORE VARNEY, a citizen of the United States, and a resident of Pittsburg, 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.

My invention relates to strain insulators for electric lines and it has for its object to provide a compact and durable device of this character that shall be capable of withstanding strains incident to the use of high voltages and that shall also embody an improved casing of insulating material.

High voltage strain insulators, as heretofore constructed, have sometimes comprised metal tubes having tapered ends into which insulating tubes and tapered plugs were fitted, the metal tubes being surrounded by coatings or jackets of molded insulating material which extended over the ends of the insulating tubes.

According to my present invention, I provide an outer casing which is built up of sections and which is so separated from the inner coating or jacket above mentioned that it is entirely freed from the strains to which the remainder of the insulator is subjected. The outer casing may be replaced by another, when desired, and it serves to effectually protect the insulator proper from the weather.

Figure 1 of the accompanying drawing is a partially sectional elevation of a strain insulator constructed in accordance with my invention and Fig. 2 is an enlarged view of the packed joint between the casing and the strain parts.

Referring to the drawings, the insulator here illustrated comprises a metal tube 1 having tapered ends, tapered tubes 2 and 3 of insulating material seated in the ends of the metal tube 1, tapered plugs 4 and 5 seated in the insulating tubes and provided with end projections 6 and 7 which extend for a material distance beyond the extremities of the insulating tubes, and strain loops 8 and 9 which are screwed upon the extremities of the projections 6 and 7.

The insulating tapered tubes 2 and 3 project materially beyond the ends of the metal tube 1 in order to increase the creepage distance between the plugs and the metal tube. The interior of the insulator, between the

plugs 4 and 5, may preferably be filled with asphalt gum, or other insulating material which may be poured in when hot and allowed to set by cooling to ordinary temperatures.

In order that a still better protection may be afforded for the entire device, I provide a casing 11 comprising two tapered sections 12 and 13 of porcelain or other hard insulating material, and end caps 14 and 15, preferably formed of cast iron, which are fitted over the shanks of the tapered plugs by stuffed joints and which serve to support the casing segments and hold them in position. The adjacent extremities of the segments 12 and 13 overlap and are provided with opposite annular recesses 16 and 17 which together form an annular groove to be filled with cement for holding the parts together. The outer extremities of the casing segments 12 and 13 are provided with annular grooves 18 over which the caps 14 and 15 extend, the caps being secured in place by cement which fills the annular grooves 18 and the spaces between the caps and the segments.

The central portions of the caps are provided with hollow hub projections 19 through which the shanks 6 and 7 extend and in which a suitable stuffing or packing material is located, tight joints being formed by bushings 20 which are screwed into the hollow hub projections 19. Although tight joints are formed at the ends of the casing 11, the strains which are imposed upon the insulator proper are not imparted to the casing. Asbestos washers 21 may preferably be interposed between the casing segments and the caps and also between the two segments. The space within the casing 11 may be filled with an insulating gum, or similar substance 10, which is sufficiently yielding to permit of a slight relative movement between the outer casing and the strain parts.

While the tapered parts are all provided with conical surfaces, as shown in the drawings, it is conceivable that modifications in their contours may be effected without substantially changing the general construction or diminishing the usefulness of the insulator.

Variations in size and arrangement of parts may obviously be effected within the scope of my invention and I desire that only

such limitations shall be imposed as are indicated in the appended claims.

I claim as my invention:

1. A strain insulator comprising parts 5 formed of metallic and insulating materials on which strains are exerted and a segmental casing therefor having sealed joints and completely inclosing said parts but relieved from the strains which are exerted upon said 10 parts.

2. A strain insulator comprising a metal tube having tapered ends, tapered plugs seated in the ends of the tube and insulated therefrom and an inclosing casing therefor 15 of hard insulating material, said casing being relieved from the strains to which the other parts are subjected.

3. A strain insulator comprising a metal tube having tapered ends, tapered tubes of 20 insulating material seated in the ends of the metal tube, tapered plugs seated in the insulating tubes and having stems or shanks extending outwardly therefrom and a segmental casing of insulating material, the 25 said casing being relieved from the strains to which the other parts are subjected.

4. A strain insulator comprising a metal tube having tapered ends, tapered tubes of insulating material seated in the ends of the

metal tube, tapered plugs seated in the insulating tubes and having stems extending outwardly therefrom, a molded jacket of insulating material which seals the tube and extends from one stem to the other, and an independent outer casing which is free from 30 the strains to which the other parts are subjected. 35

5. A strain insulator comprising a metal tube having tapered ends, tapered tubes of insulating material seated in the ends of the 40 metal tube, tapered plugs seated in the tapered tubes and having stems extending outwardly therefrom, strain loops attached to the stems, an insulating compound which fills the space in the metal tube between the 45 plugs, a molded jacket of insulating material which seals the structure and extends from one stem to the other, and an independent inclosing casing therefor comprising a pair of overlapping tubular segments and end caps 50 that form packed joints with the stems.

In testimony whereof, I have hereunto subscribed my name this 20th day of Dec., 1907.

THEODORE VARNEY.

Witnesses:

WILLIAM COOPER,
BIRNEY HINES.