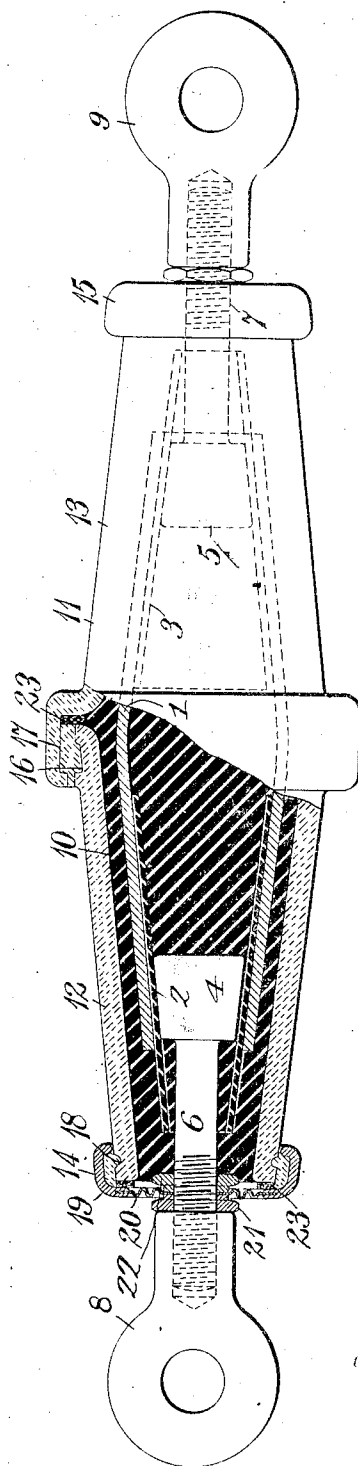


E. E. ROSE.
STRAIN INSULATOR FOR ELECTRIC LINES.
APPLICATION FILED JAN. 10, 1908.

937,867

Patented Oct. 26, 1909.



WITNESSES:

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STRAIN-INSULATOR FOR ELECTRIC LINES.

937,867.

Specification of Letters Patent.

Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, EDWARD ERNEST ROSE, a citizen of the United States, and a resident of Swissvale, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Strain-Insulators for Electric Lines, 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 which is exempt from the strains to which the other parts are subjected.

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.

The single figure of the accompanying drawing is a partially sectional elevation of a strain insulator constructed in accordance with my invention.

Referring to the drawing, 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 4 and 5 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 which are fitted over the projections or shanks 6 and 7 of the tapered plug 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 which is filled with cement for holding them 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 caps 14 and 15 are similar to each other and comprise flanges 19, preferably constructed of cast iron, and diaphragms 20 that are fitted over the shanks 6 and 7 and the outer edges of which are cast into or are otherwise secured to the flanges. The diaphragms 20 are provided with annular corrugations between the shanks and the flanges and are sealed to the shanks by set-nuts 21 and 22 which are screwed upon the shanks at the respective sides of the diaphragm.

Although tight joints are formed at the ends of casing 11, the strains which are imposed upon the insulator proper are not imparted to the casing since the annular corrugations in the diaphragms permit of a slight relative movement between the strain parts and the casing.

Asbestos washers 23 may preferably be interposed between the casing segments and the caps and also between the two segments, and the space within the casing may be filled with an insulating gum or similar substance 24 which is sufficiently yielding to permit the relative movement above indicated.

While the tapered parts, as shown, are provided with conical surfaces, it is conceivable that modifications in their contours may

be made 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 formed of metallic and insulating materials upon which strains are exerted and an outer casing therefor which is yieldingly secured to said parts and is substantially relieved from the strains exerted thereon.

2. A strain insulator comprising a metal tube having tapered ends, tapered plugs seated in the ends of the tube and insulated therefrom and a segmental inclosing casing therefor having a body of hard insulating material and relatively thin metal ends that form a yielding connection with the strain parts of the insulator.

3. 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 insu-

lating material which seals the insulating tubes and extends from one stem to the other, and an outer casing which comprises diaphragms constituting the end members thereof and secured to said stems, and a pair of overlapping tubular body segments of hard insulating material.

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 tapered tubes and having stems extending outwardly therefrom, strain loops attached to the stem, an insulating compound which fills the space in the metal tube between the 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 having yielding diaphragms secured to the stems.

In testimony whereof, I have hereunto subscribed my name this 19th day of December, 1907.

EDWARD EENESE ROSE.

Witnesses:

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