April 22, 1930. R. C. SMALLEY 1,755,971

INSULATOR

Filed March 8, 1928

Fig.1.

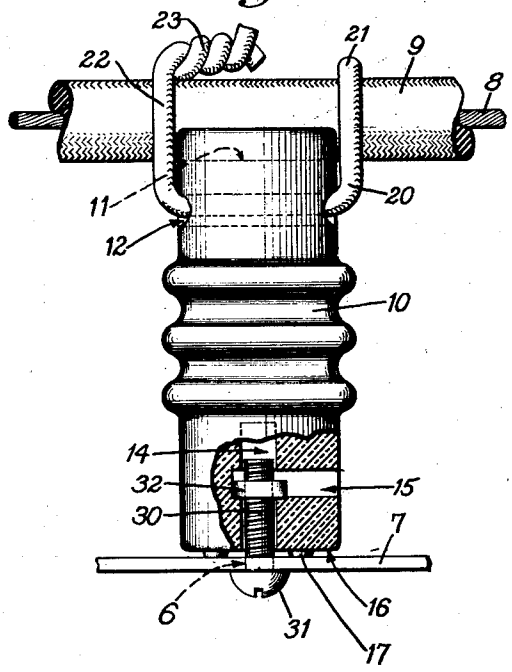


Fig.2.

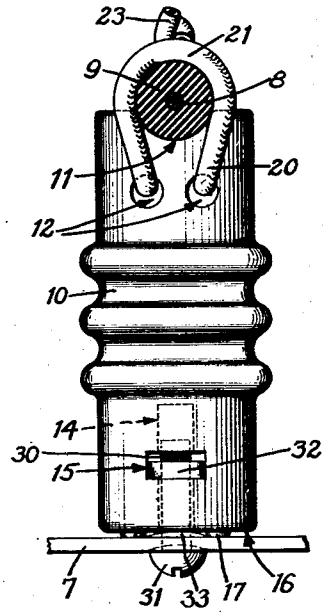


Fig.3.

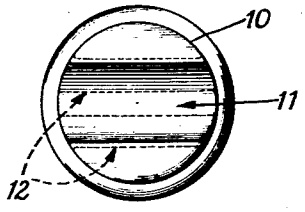
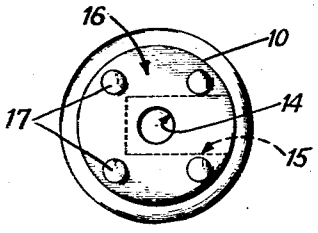


Fig.4.



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UNITED STATES PATENT OFFICE

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INSULATOR

Application filed March 8, 1928. Serial No. 259,967.

This invention relates to a support or insulator for high tension cables.

More particularly, the invention relates to insulators for the high tension wires conducting current to gaseous conductor tube lights, such as are used in advertising sign lighting. In such situations the gaseous conductor tube lights are generally mounted upon a sheet metal support or enclosure for the transformer and other elements necessary for the successful commercial operation of the lights. Such lights require an exceedingly high voltage, say from 4,000 to 10,000 volts.

It is an object of the present invention to provide an insulator particularly adapted for use in connection with the sheet metal enclosure or support, above referred to, which may be readily and conveniently mounted in position and which shall securely support the heavily insulated cable extending say from the secondary coil of the transformer to a lamp terminal without damage to the insulation. To this end, the insulator has an elongated body formed at one end with a cable receiving portion or groove and with means, such as one or more passages to receive and hold a pliable or yielding cable engaging or gripping member. This gripping member may take the form of a wire, suitably covered with yielding non-metallic material, such as rubber, which wire may be looped about the insulated cable as it lies in the groove, passed through companion passages formed in the insulator and twisted at its free ends about the cable again.

Another object of the invention is the provision of means of mounting or securing the insulator to the relatively thin sheet metal support. Accordingly, clamping means are provided, preferably comprising a bolt adapted to pass through an aperture in the sheet metal support and enter a passage in the insulator, the insulator also being provided with a recess for the nut for the bolt.

The invention also seeks a degree of adjustment of the insulator on the support to permit the convenient positioning of the cable with respect to the connected parts. To this end the clamping means is axially disposed to enable the insulator to be turned so that the cable groove may extend in the desired direction and the insulator then securely fastened in the adjusted position.

Still another object of the invention is the provision of means to prevent relative movement between the support and the insulator. Accordingly the insulator is provided with a plurality of bosses on that surface proximate the support and preferably disposed about the clamping means to frictionally engage the sheet metal support when the clamp becomes effective.

It is also sought by this invention to provide an insulator which is practical from the standpoint of ease and cheapness of manufacture and convenience in use. The insulator may desirably be composed of porcelain, formed with the necessary passages and recesses, and glazed on all its surface except the extremities of the bosses which are preferably unglazed to facilitate their frictional engagement with the sheet metal support.

These and other objects of the invention and the means for their attainment will be more fully disclosed in the following detailed description taken in connection with the accompanying drawings, which illustrate one modification by which the invention may be realized, and in which:

Figure 1 is a view in elevation showing the insulator in accordance with this invention mounted upon a suitable support and, in turn, supporting a cable.

Figure 2 is a view showing the cable support looking from the right in Figure 1.

Figure 3 is an end view of the insulator looking from above in Figure 1, but with the cable removed.

Figure 4 is an end view showing the insulator looking from below in Figure 1.

A support from which the cable may be spaced and supported by the insulator of this invention is illustrated at 7 in Figure 1. This support may take the form of a sheet of metal such as constitutes the enclosure for the transformer and other parts necessary to the operation of a gaseous conductor tube light used, say, for advertising sign lighting.

Such gaseous conductor tube lights are operated on relatively high voltages, preferably in excess of 4000 volts. A conductor feeding current to such a tube light is illustrated at 8 in Figure 1 as comprised of a plurality of strands to afford flexibility and is heavily insulated by means of rubber, as shown at 9.

The insulator body 10 is relatively elongated and preferably substantially cylindrical as shown. This body member 10 is conveniently of porcelain and is preferably glazed. It is formed at one end with a transversely extending groove or depression 11 serving as a cable receiving portion. This groove is preferably disposed on a diameter of the body member. Inwardly of the end of the insulator, beneath the cable receiving portion 11 and extending in the same general direction, the insulator body 10 is formed with one or a plurality and preferably two, passages 12 adapted to receive yielding securing means 20 for the cable.

The yielding securing means preferably takes the form of a pliable yielding member, which, for convenience may be a rubber covered wire. This wire 20 may be looped, as at 21, over the cable 8—9 at one side of the insulator 10 passed through the passage or passages 12 and then the respective ends 22 brought upwardly upon each side of the cable 8—9 where they may be twisted together, as shown at 23, to take up all slack therein and securely hold the cable to the insulator. Since the securing member is both pliable and yielding, it may engage the cable 8—9 snugly and firmly without destroying or damaging the insulation 9 as would be the case if a metallic clamp were used such as heretofore proposed. Obviously any damage or break in the insulation of a cable conducting voltages of the character here contemplated could not be permitted.

The insulator 10 is adapted to be secured at its other end to the support 7. This support may of course extend in any necessary plane. The insulator is formed with a recess or passage 14 adapted to receive the threaded shank 30 of a bolt passing through an aperture 6 formed in the support 7. The head 31 of the bolt is adapted to engage one side of the support, while the nut 32, having threaded engagement with the shank 30 of the bolt, is on the opposite side of the support 7 and thus the insulator may be clamped against the support 7. For convenience in assembling, the insulator may be formed with a transversely extending recess 15 serving, at its inner end as an enlargement of the axial passage 14. This enlargement is defined by rectangularly disposed walls as shown to receive the nut 32 and hold it against relative movement so that the clamping of the insulator to the support may be readily effected by the mere rotation of the bolt 30—31.

By disposing the passage 14 axially of the body 10, the insulator may be turned about its axis on the bolt 30—31 for adjustment so that the diametrically extending groove 11 may be disposed in any desired direction to receive the cable and thus the arrangement of the cable in respect of the terminals to be connected is facilitated. When the insulator 10 is in the proper position, the bolt may readily be turned to draw up on the nut 32 and clamp the insulator in the adjusted position.

To prevent axial rotation of the insulator with respect to the support after adjustment the end surface 16 proximate the support 7 may be formed with a plurality of bosses 17 spaced from one another and from the passage 14 for the bolt. These bosses preferably have an unglazed surface or end to engage the surface of the support 7 and the frictional contact thereof will prevent relative movement of the insulator with respect to the support. In some situations, as illustrated in Figure 2, the clamping action of the bolt 30—31 will serve to depress or distort a sheet metal support 7 about or with respect to the bosses 17 as shown at 33, and will further serve to prevent relative turning movement.

It will thus be seen that an insulator for high tension cable has been provided which may be readily formed of moldable material and which may be provided with means for securely although yieldingly holding a cable at the one end, and at its other end provided with means for quickly, easily and securely mounting the insulator upon a support with provision for adjustment.

Various modifications will occur to those skilled in the art in the composition and configuration of the several features going to make up the invention as a whole and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawings except as set forth in the appended claim.

What I claim is:

An insulator for high tension cable comprising in combination, an elongated cylindrical body of glazed porcelain formed with a diametrically extending cable receiving groove in the face of one end, the cylindrical body having a plurality of beads extending around the circumference of the body at its mid-point, a pair of passages proximate the

groove, an axial passage at its opposite end and a radially extending recess in communication with said passage, a pliable yielding cable securing member in the passages and adapted to be looped over a cable in the groove, a bolt in the axial passage adapted to clamp the insulator to a support, a nut in the radial recess to engage the bolt, and unglazed bosses on the face of the end opposite the cable passage.

In testimony whereof I affix my signature.

ROBERT C. SMALLEY.