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B. JOHNSON

INSULATOR FOR BRIDLE WIRES

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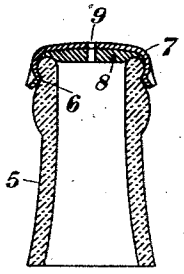


Fig. 1

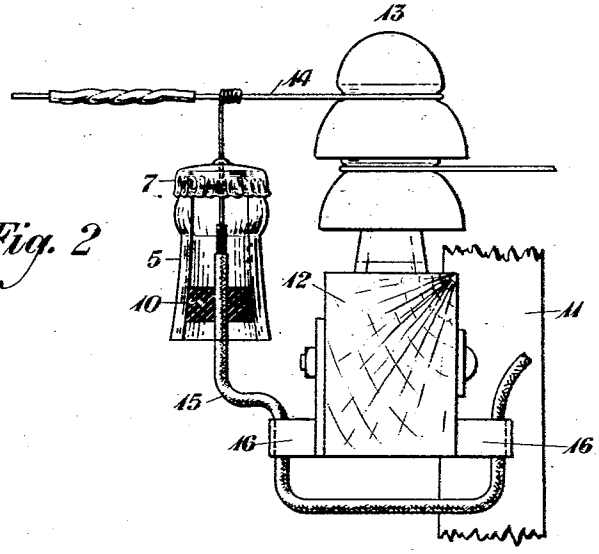


Fig. 2

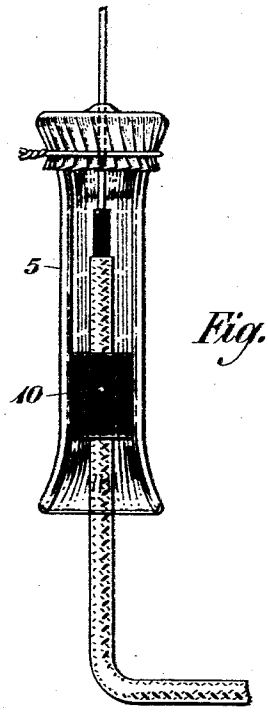


Fig. 3

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UNITED STATES PATENT OFFICE.

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INSULATOR FOR BRIDLE WIRES.

Application filed March 25, 1922. Serial No. 546,771.

In the construction of open lines for the transmission of electrical signals, it is a common practice to connect the bare line conductors to apparatus mounted upon the poles, as loading coils and their lightning arresters, or to the terminals of cables by means of depending conductors termed "bridle wires", provided with the usual insulating covering, including an inner layer of some such material as rubber, and an outer protecting textile layer or braid impregnated with a substance which renders it more or less nonhygroscopic. Between the line and connected points, these bridle wires are cleated to the crossarms, and are liable to come in contact with one another and with the arms. When the wires are new, there is no marked leakage, but after exposure the outer covering becomes absorbent, and in damp weather this furnishes a conducting path between bare portions of bridle wires, and from them to ground. On some circuits, as high efficiency loaded telephone lines, considerable transmission losses are thus introduced. To prevent this, it has been proposed to shelter against moisture a portion of the covering of each bridle wire, this including a continuous ring about its circumference, so that the path through which the leakage occurs is broken. The provision of an inexpensive insulator for this purpose, which will remain effective in use, has proven difficult and to this the present invention is directed.

In the accompanying drawing, in which certain embodiments of the improved insulator are illustrated, Figure 1 is a vertical section of one form of the insulator; Fig. 2 represents the device in use, and Fig. 3 is an elevation of another form of the invention, showing the bridle wire in place.

Similar characters of reference designate like parts in the several views of the drawing.

The insulator 5 comprises a tubular body portion preferably composed of glass, it having a head portion provided with a circumferential flange 6, which is adapted to engage a downwardly extending edge of a cap 7. Within the upper circular surface of the cap 7 is provided a disk 8, of some such springy substance as cork or the like, which adheres snugly thereto. The disk 8 is of larger diameter than the opening of the tubular portion 5, and when the cap 7 is placed in position the disk covers the top of the tubular portion, so that by means of the resilient material comprising said disk, a tight and water-proof closure is provided between the cap and tubular portion when they are clamped together. A perforation 9 is provided in the center of the cap 7 and disk 8 through which the bared end of a bridle wire passes.

In the modification shown in Fig. 3, the tubular body portion 5 is provided with flared ends. A cap 7 is affixed to the upper flared end by any suitable means, and this securing means also serves to keep in place an interposed layer of moisture-proof material, such as paraffined paper, which covers and extends over the opening in the top of the tubular portion.

At 10 is indicated a spacing means, which may be comprised of tape, cork or other insulating substance, which serves to center the bridle wire in vertical position so that it will not contact with the sides of the tubular portion 5 and thus provide a path for the leakage of current. The member 10 also provides means for closing the tube against moisture, thereby improving its insulating characteristics.

In Fig. 2, which illustrates the device in use, a portion of a pole 11 is shown, with its crossarm 12 carrying the usual line insulator 13. Upon this insulator the line conductor 14 is dead-ended, and from the line the bridle wire 15 leads through cleats 16 to apparatus not shown, but which, as previously indicated, may be a loading coil and its lightning arrester.

When the bridle wire is prepared for connection with the line, enough of its end is bared to extend through the opening provided in the top of the insulator and leave a portion for wrapping about the line wire. Below this bared part a portion of braid is removed leaving exposed the inner layer of insulating material between the bare wire and the outer layer of braid. The insulated portion of the covering which lies within the chamber of the tubular portion together with the remainder of the braided portion are preferably coated with asphaltum, or a like plastic insulating substance. Thus prepared, the end of the bidle wires is drawn through the opening in the cap covering the insulator and solder is applied to close

the opening and secure the wire to said cap. The free end of the bridle wire is joined to the line in the customary manner. The insulator hangs upon the wire in a vertical position and the solder completes a joint which effectually excludes water. The joint is amply strong to resist the weight of the insulator and the play which will be imparted by the wind. The wire passing downwardly through the tubular chamber is held away from the sides and ends thereof by the spacing means provided in the tubular portion so that the leakage of current between these elements is restricted to that which can take place on and through the spacing means The path for leakage is further broken by the removal of the braid within the chamber portion which prevents moisture being carried further along the absorbent braid by capillary attraction. It will be obvious that the above described insulator provides an inexpensive arrangement which will not rapidly deteriorate or be seriously affected by climatic conditions.

While there are shown and described herein certain preferred forms of the invention by way of illustration, it will be understood that it is not limited or confined to the precise details of construction herein described, as modifications and variations may be made within the scope of the claim without departing from the spirit of the invention.

What is claimed is:

An insulator adapted for use with bridle wires, said bridle wires having a bared portion and an adjacent portion with insulated covering, a tubular chamber for said insulator, a circumferential flange and a cap for engaging said flange and rendering said chamber water-proof, the bared portion of the bridle wire extending through said cap and being secured thereto, and the insulated portion terminating in said chamber to prevent moisture being further carried along by capillary attraction, and spacing means positioned within the chamber portion and above the bottom of the insulator for retaining the bridle wire in vertical position and free from contact with the bottom of said insulator, said spacing means providing with the vertical wall of the tubular chamber a sheltered recess to interrupt the exterior conductivity of the insulator under wet weather conditions to restrict the leakage of current between the elements of the insulator.

In testimony whereof, I have signed my name to this specification this 20th day of March, 1922.

BENJAMIN JOHNSON.