F. J. SCHISLER.

INSULATOR.

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1,116,631.

Patented Nov. 10, 1914.

Fig. 1.

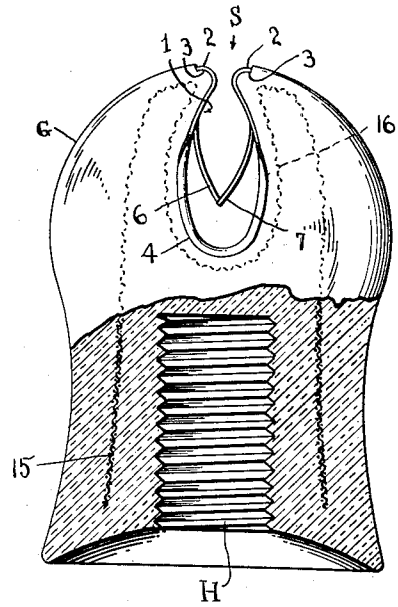


Fig. 2.

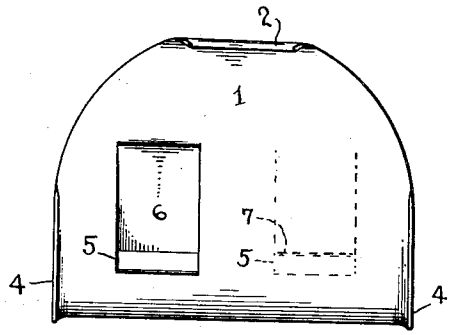


Fig. 3.

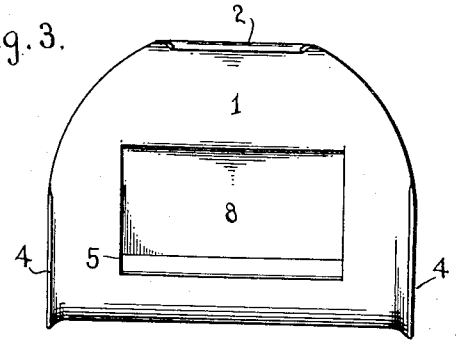


Fig. 4.

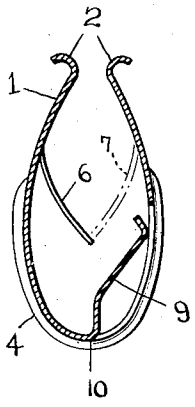


Fig. 5.

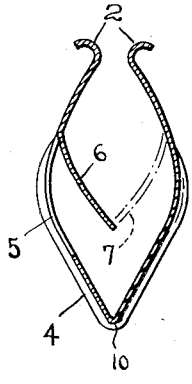
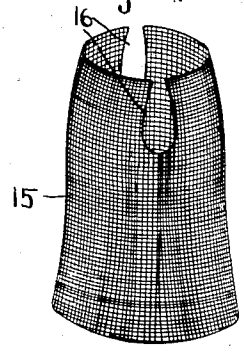


Fig. 6.



Witnesses

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INSULATOR.

1,116,631. Specification of Letters Patent. Patented Nov. 10, 1914.

Application filed March 24, 1913. Serial No. 756,480.

To all whom it may concern:

Be it known that I, FRANK J. SCHISLER, a citizen of the United States, residing at Winthrop, in the county of Sibley and State of Minnesota, have invented certain new and useful Improvements in Insulators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric conductors, and more especially to insulators; and the object of the same is to produce an insulator of glass or the like reinforced with metal so as to form a slot therethrough in which the line wire lies but wherein it is not fastened, the result being that it may slide through the insulator if the poles lean in either direction or unusual tension should be thrown on the wire at any point.

Other objects and advantages will appear from the following specification and claims, and the device is shown in the accompanying drawings wherein—

Figure 1 is an elevation of this insulator taken from one end of the slot through it, the lower portion of the insulator being in vertical section. Figs. 2 and 3 are elevations of different forms of the metallic lining. Fig. 4 is a cross section through a metallic lining of slightly different construction in that it has an upstanding tongue in addition to the others, and Fig. 5 is a similar cross section of yet another form of lining which is V-shaped at the bottom. Fig. 6 is a perspective view of the wire screen reinforce.

The body G of this insulator will by preference be made of glass, having a deep transverse slot S across its upper end and a threaded hole H in its lower end to screw onto the upstanding peg in the cross arm of the pole as usual; but where I say "glass" throughout the specification and claims, it is quite obvious that other insulating material could be employed. Long experience has shown that a cheap grade of green glass is best adapted to this use, and it may be well to assume that such is the material of the body. Ordinarily such insulators are molded in rough outline, and commonly they are provided with an annular groove across one side of which the line wire extends, while a tie wire passes around the other side of this groove and has its extremities connected with said line wire. In a certain class of insulators the fastening means take the form of a notch or a deep slot formed in the top of the glass body, and the wire is passed therethrough and secured therein in any suitable manner. It is common with linemen, however, to attach the line wire to each insulator in some way so that it cannot slip therethrough and will not be disconnected therefrom by wind and storm. The object of the present invention is to avoid the necessity for making such attachment and to permit the wire to lie free within a slot in the insulator so that it can move therethrough, although some provision is made for preventing its disengagement with the slot. Another contingency is that mischievous boys or hunters ofter throw or shoot at these glass insulators and break them, and frequently put the line out of business because the line wire and its fastening device fall away from the insulator and become entangled with the pole and its arms and pegs, so that the line is short circuited and in some instances broken. This I seek to overcome by molding a reinforce of wire screening into the body G as the latter is formed, and even if the same is cracked or broken by malicious persons the glass inside this wire screen reinforce will be sufficient to sustain the line wire if the miscreant should continue his depredations until the insulator is entirely destroyed.

Coming now to the details of the present invention, the slot S across the top of the glass body G is preferably ovoid in shape, although it may come to an angle at the bottom as seen in Fig. 5, but in any event its outlet or mouth is preferably narrower than the remaining portion of the slot so that the sheet metal lining 1 is held therein. Said lining is inserted in the mold at the time the glass body is made, and said body allowed to shape itself around the lining in a manner which will be clear. However, I do not wish to be limited to the manner in which this device is formed, as it is quite possible to mold the glass body and spring the metallic lining 1 thereinto later. The body 1 of the metallic lining is substantially V-shaped, angular at the bottom as seen in Fig. 5 or rounded as elsewhere illustrated, its sides diverging from each other upward from this point, then converging near the top of the slot S, and then bent sharply outward into two lips 2 which are intended to

lie within rabbets 3 formed in the top of the body G at opposite sides of the slot S. In side view the lining as thus constructed appears as shown in Figs. 2, 3 and 5, in all of which instances its ends are flanged as at 4 and bent outward to enlarge the ends of the opening through which the line wire passes and to remove sharp corners therefrom. In the construction shown in Fig. 2 the sides of said body are cut with U-shaped slits 5 forming tongues 6 and 7 in opposite sides and out of register with each other, and these tongues are subsequently bent inward until their lower extremities overlap slightly as seen in Fig. 1. In the construction shown in Fig. 3 a single and wider tongue 8 is cut in either side of the body, and the lower ends or tips of the two tongues are bent into contact with each other. In the construction shown in Fig. 4 the tongues 6 and 7 are again employed, although they are somewhat smaller than illustrated in Fig. 2, but here an additional tongue 9 is cut from one side and projects upward from the bottom line 10 of the lining as shown. The metal of which this lining is made will by preference be either galvanized iron so that it cannot rust, or suitably treated to the same end, and its size and exact configuration is immaterial excepting that it will conform proportionately with the size of the class insulator employed. In connection with this sheet metal lining I preferably employ a metal reinforce for giving strength to the glass body G, and this I make in the shape of a truncated cone 15 and from wire screen as seen in Fig. 6 and as indicated in section in Fig. 1. The same is placed within the mold in which the glass body G is to be formed, and molded therein at the time the same is made, the fact that it has openings through it permitting the molten glass to run through them and incorporate itself thoroughly with this reticulated reinforce. Opposite the point where the slot S exists, the upper or smaller end of this tubular reinforce is slotted as at 16 so that in the finished article there is an opening completely across the upper end of the reinforce for the passage of the line wire. The hole H in the lower end of the reinforce for permitting it to be screwed onto the peg as usual will of course stand within the larger end of the reinforcing element 15, and there should be sufficient glass around this hole inside of the wire screen and around the body G outside the wire screen to resist the normal strains that are thrown onto an insulator and the sudden changes in temperature to which it is subjected.

In the use of this improved device, its hole H is screwed onto the peg which stands at the outer end of the cross arm of the telegraph pole as usual, or which extends upward from any kind of support; but care should be taken in placing the insulator thereon that the slot S stands lengthwise of the line of wire being strung. When the wire is to be put in place it is merely dropped down through the throat of the slot S, when it passes between the two lips 2 of the sheet metal lining, then drops between the tongues 6 and 7 or between the meeting tips of the tongues 8, and comes to rest at the bottom 10 of this lining plate. If the additional tongue 9 be employed as shown in Fig. 4, the line wire after slipping off the side tongue 7 will pass into contact with this tongue 9, and slip down the same into the angle 10 at the bottom of the lining where it is held with a certain degree of friction, due to the fact that the tongue 9 is deflected inward as illustrated in Fig. 4. The depth of the notches 16 in the screen reinforce is of course sufficient to keep it entirely out of contact with the wire where the latter passes out the opposite sides of the glass body G, as indicated in dotted lines in Fig. 1. The lower ends or tips of the tongues 6, 7, or 8 should be sufficiently elevated above the angle 10 at the bottom of the lining to prevent the contact of the line wire with said tips when it lies in said angle, and the result is that slight movements of the wire within the lined slot either laterally or longitudinally of the insulator do not wear the wire or produce any noise; in fact, I have found by experience that the use of a metallic lining of this character and with which the wire makes constant contact prevents that humming or singing commonly noticed in telegraph and telephone poles, and this I consider an important feature of my invention. Having dropped the wire into the reinforced slot as described, it can be tightened from either side by simply drawing on it so that it will slip through the metal lining 1 as the necessities of the case may require. Therefore the lineman needs no tools in putting a wire onto an insulator of this character, and if he be sufficiently expert he may lift the wire from the ground and drop it into the open mouth of the metallic lining without even ascending the pole. After the line is completed and the linemen have departed, breaking or damaging of the wire is prevented by the fact that it may slip through the lining as the necessities of the case may require. For instance, assume that a pole begins to tip or lean in one direction along the line—hitherto this would tighten the stretch of wire at one side and loosen that on the other, but with the use of this improved metallic lining the insulator simply slips along the wire at the point where the pole gets out of place. If it should so happen that the wire has to be taken off the insulator, the lineman will insert a screw driver or similar tool longitudinally into the device and pry the tongues

6 and 7 apart with one hand, while lifting the wire with the other. The same treatment could be used to pry the tongues 8 apart if that type of the device be preferred.

It may happen that the telephone or telegraph company prefers that the wire shall be tied, and the construction of my improvement is such that such requirement can be complied with by drawing the ordinary tie wire around the insulator and securing it at either side of the same to the line wire. In fact, it is preferred to tie the line wire to all insulators where the line makes an angle or where it introduces a switch.

While it may be preferred in some cases to cheapen the device by omitting the wire screen reinforce, I consider it extremely practical as protecting the glass against loss in case it should become cracked. Assuming that such provision has been made and a boy throws at it until he is successful in breaking the glass, the result will be that the glass outside of the tubular reinforce will fall away, while that part of the glass contained within such reinforce, even though it should be broken or cracked, will be held by the wire screening and will retain the lining in place to support the line wire.

What is claimed as new is:

1. The herein described insulator comprising a body of non-conducting material having a transverse slot in the top thereof and designed to loosely receive a line wire therein, the upper portion of said slot terminating in a contracted mouth and the top thereof being also offset to provide seats at the edges forming the mouth of said slot, a metallic lining applied to the walls of said slot to completely cover the same, outwardly bent flanges at the upper edges of said lining forming lips for reception snugly in the aforesaid seats of said body, means on said lining for loosely retaining the wire in place in said slot, and outwardly bent flanges formed on the end edges of said lining continuing along the bottom and the greater portion of the height of the sides thereof, said last mentioned flanges overlying the corners of the body at the sides and bottom of the slot therein to prevent longitudinal movement of the lining in said slot and also to protect the corners of the body from the wire which is loosely disposed through said slot.

2. The herein described insulator comprising a body of non-conducting material having a transverse slot in the top thereof and designed to loosely receive a line wire therein, the upper portion of said slot terminating in a contracted mouth, a metallic lining applied to the walls of said slot to completely cover the same, inwardly extending tongues struck from the opposite walls of said lining to form a retaining means for a wire in said slot, and an additional tongue struck from the bottom of said lining and directed upwardly and outwardly toward one side wall thereof.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK J. SCHISLER.

Witnesses:
A. L. YOUNG,
CHAS. W. QUANDT.