Dec. 5, 1933. R. T. POPLIN ET AL 1,937,715

MOISTUREPROOF TERMINAL LUG PROTECTOR

Original Filed Dec. 9, 1930

Fig. 1.

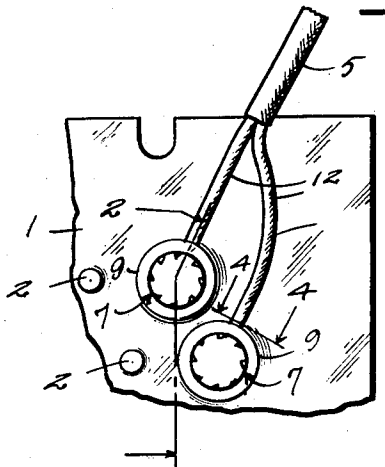


Fig. 2.

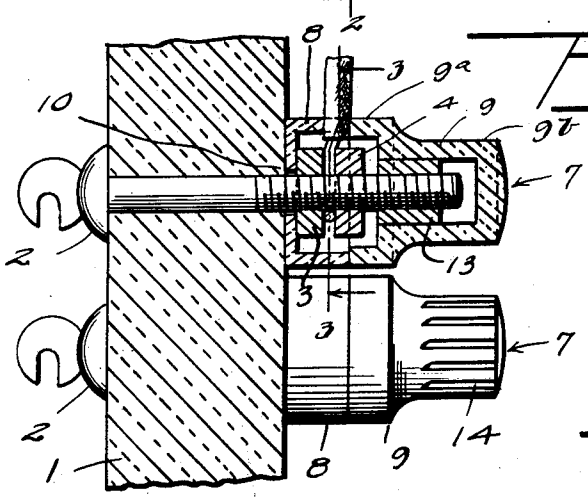


Fig. 3.

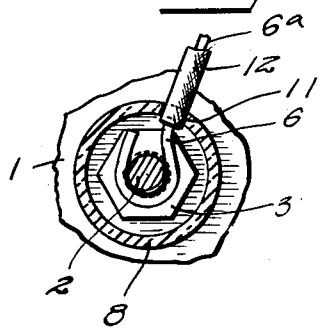
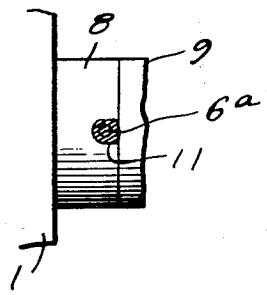


Fig. 4.



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UNITED STATES PATENT OFFICE

1,937,715

MOISTUREPROOF TERMINAL LUG PROTECTOR

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3 Claims. (Cl. 173—259)

This invention relates to protectors for terminal lugs of that type used by telephone, telegraph, and other companies, these lugs being used on panels and the main object of the invention is to provide a simple and inexpensive protector which is so formed as to entirely protect such terminal lugs and the connections of the conductors therewith from moisture either due to rain or fog entering the box containing the panel or due to sweating.

A further object is to provide a protector of this character which is formed in two parts, a base and a cap, the base being so formed that it is held in water-tight engagement with the panel by one of the binding nuts of the terminal lug, the cap being so formed as to entirely cover and screw upon the outer end of the terminal lug, the base having an aperture through which the conductor may pass and the cap compressing the insulation of the conductor into this aperture or notch.

A further object in this connection is to provide a protector of this character wherein the cap may be removed and replaced without in any way disturbing the base portion of the protector and wherein wires entering the base portion of the protector may be removed from the terminal lug or replaced without affecting the base portion, the protector further acting when in place to prevent any "shorting" of the various conductors on the panel, either by contact with the tools of the electrician or by reason of moisture causing a leakage of voltage across the panel.

The invention is hereinafter more fully described and claimed, and illustrated in the accompanying drawing, wherein:—

Figure 1 is a view in front elevation illustrating the application of protectors constructed in accordance with my invention.

Figure 2 is a sectional view taken on the planes indicated by the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the planes indicated by the line 3—3 of Figure 2, and

Figure 4 is a sectional view taken on the plane indicated by the line 4—4 of Figure 1.

Referring in detail to the drawing, 1 designates the base or panel and 2 the lugs of a cable terminal of that type used by telephone and telegraph companies. The panel 1 is made of insulating material, and the terminal lugs extend through and are secured to the base. The means for securing the terminal lugs 2 to the panel 1 includes nuts 3 which together with nuts 4 serve to secure the conductors 6 and 6*a* of a cable 5 to the terminal lugs. It will be understood that the panel, the lugs, and the nuts 4 are all in common use today and constitute no part of my invention and that these panels with the terminal lugs are ordinarily used in outside work, making connections to telephone branches and that they are ordinarily housed within a box.

The protectors 7 which are adapted to completely protect the exposed or those portions of the terminal lugs 2 that project beyond the front side of the panel 1, and also the nuts 3 and 4 and the connections between the conductors 6 and 6*a* and the terminal lugs, each comprises a fixed or base member 8 and a removable or cap member 9 made of any suitable insulating material. The base member 8 is of hollow cylindrical formation, and is closed at its rear and open at its front side. The rear end of the base member 8 is formed with an inwardly extending flange formed at its center with an opening 10 for the passage of the front portion of a terminal lug 2.

The base member 8 is applied to the terminal lug 2 in a manner to position its rear wall or flange between the front face of the panel 1 and the nut 3 to the end that this nut may be employed to secure the base member in applied position with its flange bearing tight against the face of the panel, the nut 3 holding the base member from any accidental rotation once it has been put in place. The annular or side wall of the base member 8 is provided with a recess 11 for the passage of one of the conductors 6 and 6*a* and for the reception of the terminal portion of the insulating jacket 12 of the conductors. The depth of the recess 11 is less than the external diameter of the insulating jacket 12. The cap member 9 is fully opened at its rear end and fully closed at its front end, and the outer or forward end is reduced in exterior diameter relative to the inner or rear end and is formed for the application of a wrench whereby it may be turned on or off. The portion 9*a* is larger in external diameter than the portion 9*b*. The depths of the portion 9*a* and the base member 8 are greater than the combined thickness of the nuts 3 and 4 and the conductor connections, so as to permit the rear edge of the cap to contact with the front edge of the base member, the cap closing the front side of the recess 11. The cap 9*b* has secured therein a bushing 13 which is engaged with the terminal lugs 2 to secure this portion in applied position.

To apply the protectors, the nuts 3 and 4 and

the conductors 6 and 7 are removed from the terminal lugs 2, the base members 8 are then applied to the terminal lugs and secured in place by the nuts 3. After this has been done the conductors 6 and 6a are connected to the terminal lugs 2 and are secured thereto by the nuts 3 and 4, and thereafter the cap members 9 are threaded on the terminal lugs until their rear edges contact with the front edges of the base member 8.

As the depth of the recess 11 is less than the external diameter of the insulating jacket 12, those portions of the jacket located in the recess will be compressed during the application of the cap member 9, with the result that the recess will be sealed. In view thereof, and as the cap member 9 contacts with the base member 8, a moisture proof connection is established between said members. The terminal lugs 2 are closely related and spaced on the panel but reduced size of the cap portions 9b compensate for this by spacing such portions far enough apart to enable one to be easily gripped without contacting with any other.

It will be seen that with this construction, the base member 8 is held centered upon the post or terminal lug 2 by the panel contacting flange of the base, the aperture 10 of which is sufficiently small as to prevent anything but a very slight movement of the base member 8 with relation to the lug. Further, this panel contacting flange on the base 8 constitutes means whereby this base 8 is clamped firmly to the panel so that once the workman has set this base in proper position with its notch 11 directed in the proper direction to receive the conductor, the nut 5 may then be set to hold this base exactly in the place desired and thereafter this base is not moved unless for some reason it is particularly necessary to do so. Furthermore, the relatively wide flat flange of the base 8 secures a large area of contact between the outer face of this flange and the panel. This wide area of contact, therefore, practically seals the base against the panel and prevents any moisture or foreign matter from getting between the base and the panel and thus finding a way into the interior of the protector.

It will be noted that the nuts 3 and 4 have a diameter slightly less than the internal diameter of the base 8 and the cap 9 so that a specially formed wrench may be used to apply these nuts. This base flange, therefore, which contacts with the panel is a very important element of my structure for the reasons above stated.

While I have described the principle of the invention, together with the structure, which I now consider the preferred embodiment thereof, it is to be understood that the structure shown is merely illustrative and that such changes may be made, when desired, as fall within the scope of the invention as claimed.

What is claimed is:—

1. As an article of manufacture, a terminal lug protector comprising a hollow annular base member of insulating material having an annular panel-contacting flange extending inwardly and defining a central aperture extending centrally through the flange through which aperture a terminal lug may be passed, the aperture being designed to center the base member on the lug, and a hollow cap member of insulating material having a threaded bore in its upper portion to engage the threads of the terminal lug, the lower portion of the cap having an internal diameter approximately equal to the internal diameter of the base member and the upper edge of the base member being formed with a recess to permit the passage of a conductor and its insulation.

2. As an article of manufacture, a terminal lug protector and conductor clamp, comprising a hollow annular base member of insulating material having an annular base flange extending inwardly and defining a central aperture through which the terminal lug passes, and a hollow cap member of insulating material having a threaded bore in its upper portion to engage the threads of the terminal lug, the lower portion of the cap having an internal diameter approximately equal to the internal diameter of the base and the upper edge of the base being formed with a recess to permit the passage of a conductor and its insulation, the depth of said recess being less than the total diameter of the conductor to be used therethrough and its insulation, whereby said insulation may be compressed when the cap is screwed home.

3. The combination with a panel and a terminal lug extending through said panel and being screw-threaded exteriorly of the panel, of nuts engaging the terminal lug and adapted to clamp a conductor between them for electrical engagement with the lug, of a protector comprising a hollow annular base portion having an inwardly extending annular flange bearing against said panel, and defining a centering aperture through which the lug passes, the base having an internal diameter substantially greater than the diameter of said nuts whereby a wrench may be applied to the nuts, the wall of the base being formed with a recess to receive a conductor and its insulation, and a cap, the upper portion of which is formed with a threaded bore to engage the screw-threads of the lug, the lower end of the cap being larger in exterior diameter than the outer end and having an internal diameter substantially that of the base member, said cap when in place and screwed home compressing the insulation of the conductor into said recess.

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