Nov. 21, 1933. L. L. MERRILL 1,936,470

INSULATING SPACER

Filed June 22, 1931

Fig. 1.

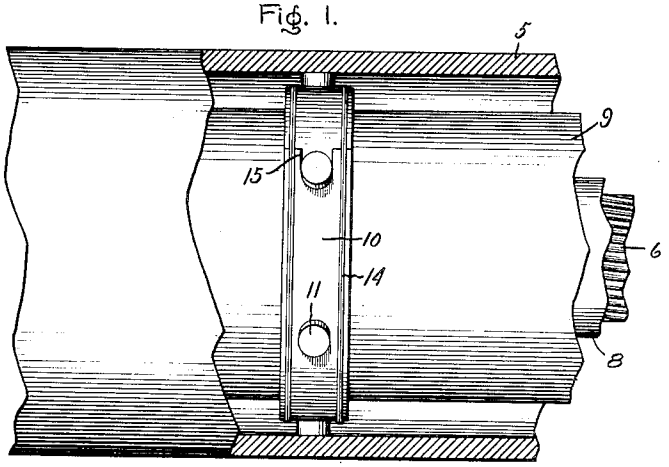


Fig. 2.

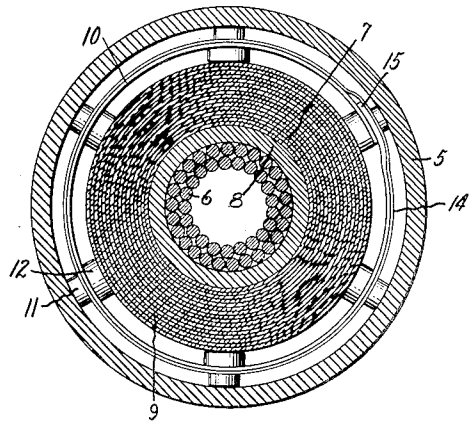


Fig. 3.

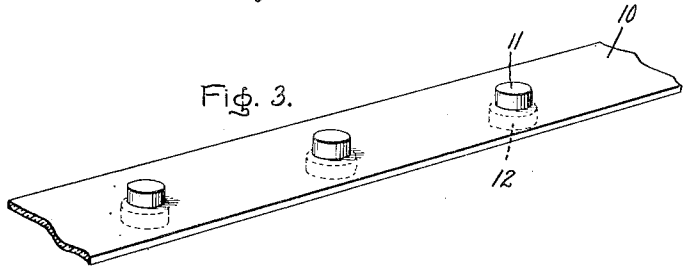
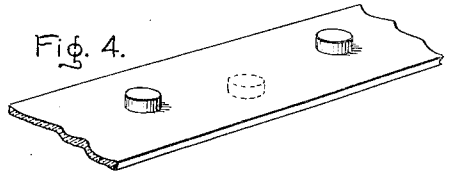


Fig. 4.



Inventor:
Lynn L. Merrill.
by Charles E. Mullen
His Attorney.

Patented Nov. 21, 1933

1,936,470

UNITED STATES PATENT OFFICE

1,936,470

INSULATING SPACER

Lynn L. Merrill, Pittsfield, Mass., assignor to General Electric Company, a corporation of New York

Application June 22, 1931. Serial No. 546,063

6 Claims. (Cl. 173—266)

The present invention relates to insulating spacers for maintaining the proper distance or space between surfaces subjected to different potentials, and has for its object the provision of a spacer of improved construction and one which is easily applied and of low cost of manufacture.

The spacer is well adapted among other things to maintain the proper spaced relation between parts of a high tension cable joint or terminal, and for that reason, but without limitation thereto, will be described in connection with such a device.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing which is illustrative of my invention, Fig. 1 is a view partly in section of a high tension cable joint; Fig. 2 is a cross-section of the joint; Fig. 3 is a perspective view of the spacer, and Fig. 4 is a detail view of a slight modification.

5 indicates a metallic casing which may be that of a cable joint or terminal. 6 indicates an electric conductor, in this case hollow, and adapted to contain a body of thin insulating fluid, such as oil for example. Surrounding the conductor is suitable insulation 7 of which paper is an example. In the case of a joint, the adjacent ends of the conductors are united by a connector or sleeve 8 which is soldered thereto. Surrounding the connector and the adjacent ends of the conductors including the insulation 7 thereon is a reinforcement comprising a wrapped-on body of insulation, as for example varnished cambric 9. With respect to the parts above mentioned, as to size, location, etc., I may follow the usual constructions and arrangements. The casing after being joined to the sheaths of the cable sections is filled with oil.

In order to maintain the casing 5 and the insulating wrapping 9 in suitable spaced relation, a thin strip of insulation 10 is employed which may be made of pressed board or equivalent material which will not be adversely affected by the insulating oil contained in the casing of the joint or terminal. On this strip at suitably spaced intervals are buttons 11 and 12 punched from sheet stock and made of insulation which may with advantage be made of the same kind of material as the strip. As shown the buttons are of different size, the buttons 12 being larger in diameter than the others. The buttons are secured to the strip by a cement, such as glyptal, which is not adversely affected by the insulating oil in the casing. The buttons are preferably made round as distinguished from other shapes to lessen the possibility of entrapping air and other gases in the joint or terminal during the operation of filling the casing with oil. In applying the spacer it is desirable to place the large buttons in contact with the reinforcement 9 and the small buttons outside the strip since by so doing sufficient space is provided for the binding bands 14 which hold the spacer in place. These bands are commonly made of twine or equivalent insulating material.

The spacer will be applied before the casing 5 is adjusted to its final position. The ends of the strip overlap so as to be mutually supporting. Both ends may be cut off square or one of them may be slotted as at 15 to partly enclose a button to prevent sidewise movement of the end with respect to the strip as a whole. By reason of this construction the buttons may make contact with the inner surface of the casing, or with the reinforcement or both while maintaining a sufficient creepage distance for current between surfaces having different potentials.

One of the advantages of the construction is that the strip can be made in long pieces and then cut to the proper length for a particular purpose. Another is that it can be prepared at the factory rather than at the place of installation, thereby ensuring greater uniformity in final results. As shown, the parts to be separated are round and concentrically arranged, but my invention is useful with parts which are otherwise arranged. It is generally desirable to so construct the buttons that each pair of inner and outer buttons are aligned, but I may if desired so arrange the buttons that they alternately project first above and then below the strip, as shown in Fig. 4. Only one strip with its buttons may be used in a given installation or a greater number; this will depend upon the lengths of the bodies that are to be maintained in spaced relation. The strip may be of any suitable width to meet the requirements of the installation.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A spacer comprising a wrapping strip of insulating material and spaced buttons of different size also of insulating material independently secured to the strip the smaller buttons projecting above and the larger buttons below the opposite surfaces of the strip.

2. An electrical device comprising bodies, the surfaces of which are subjected to different potentials and a spacing device located between the bodies comprising a wrapped strip of insulating material, and buttons of different size independ-

ently secured to the strip and projecting from opposite surfaces thereof, the larger buttons being in engagement with the wrapped body.

3. An electrical device comprising an insulated member, a metallic member enclosing the insulated member, and a spacer located between the members comprising a wrapped strip of insulating material, and insulating buttons independently secured to and projecting from opposite surfaces of the strip, each pair of buttons being aligned.

4. An electric device comprising metallic and insulated members in spaced concentric relation, a strip of insulating material surrounding one of the members, buttons affixed to the strip in such manner that part of them engage the outer member and the remainder the inner member, and a band wrapped around the strip adjacent the buttons for holding the same in place.

5. An electric device comprising metallic and insulated members in spaced concentric relation, a strip of insulating material surrounding the inner member and having a slot in one end, buttons affixed to the strip certain of which engage one of the members and the remainder the other member, one of said buttons being located in said slot, and means for securing the strip in place.

6. An electric device comprising a metal casing, an insulated conductor within the casing, the two being in concentric relation and subjected to different potentials, and a spacing device situated between the inner wall of the casing and the insulation on the conductor and comprising a wrapped strip of insulating material and buttons of different size projecting from the strip, those of larger size being in engagement with said insulation.

LYNN L. MERRILL.