L. STEINBERGER.

INSULATOR.

APPLICATION FILED NOV. 14, 1916.

1,335,801. **Patented Apr. 6, 1920.**

Fig. 1.

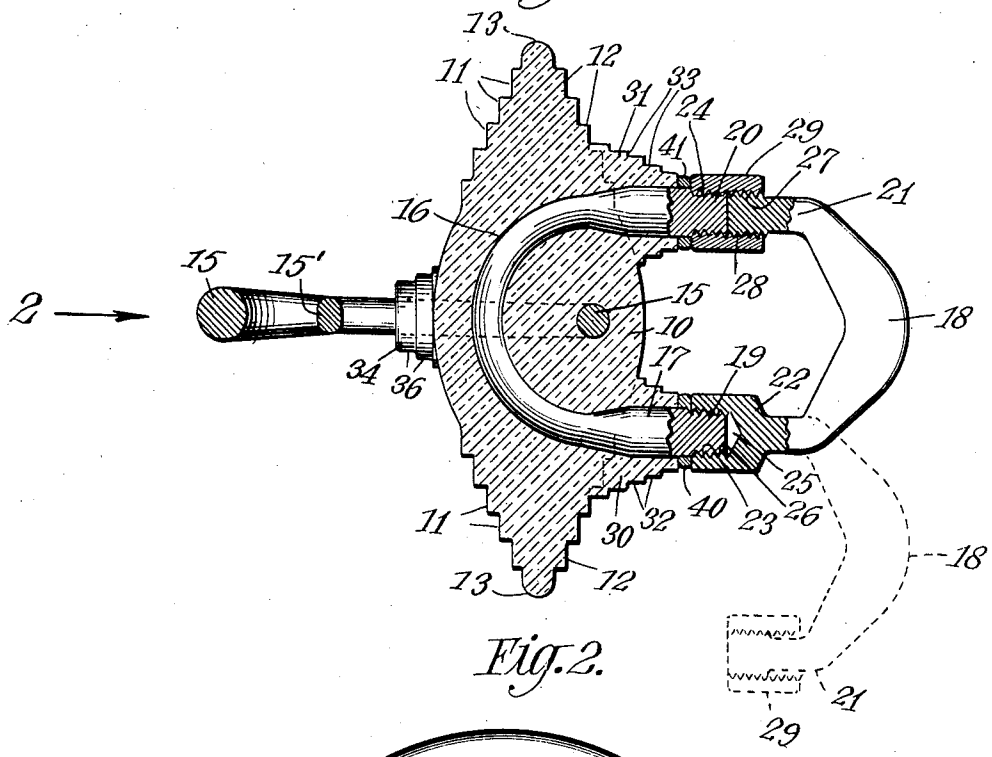
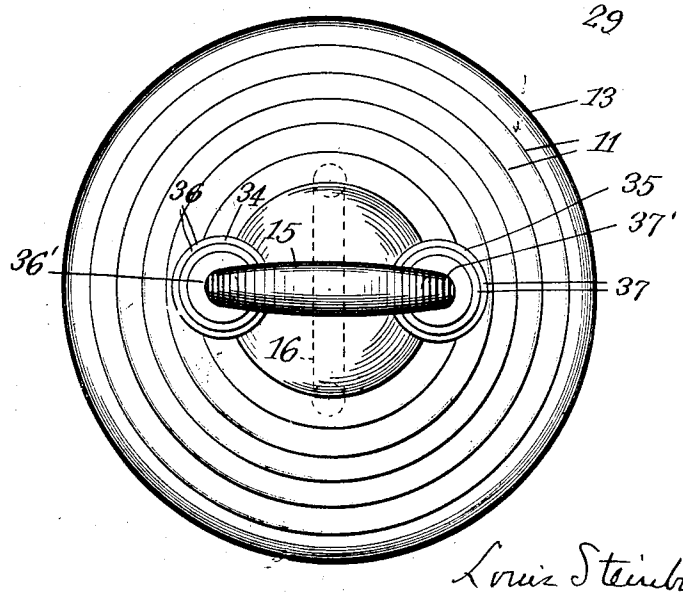


Fig. 2.



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LOUIS STEINBERGER, OF BROOKLYN, NEW YORK.

INSULATOR.

1,335,801. Specification of Letters Patent. Patented Apr. 6, 1920.

Application filed November 14, 1916. Serial No. 131,218.

To all whom it may concern:

Be it known that I, LOUIS STEINBERGER, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Insulators, of which the following is a specification.

My invention relates to insulators for the support and insulation of electric conductors employed for many purposes, such as wireless telegraphy and telephony and various kinds of electric power and electric power transmission, more especially for use in connection with currents of very high voltages and very high frequencies.

To these ends, my particular object, is to improve the form and general construction of such insulators, so as to render them, as nearly as practicable, proof against the destructive effects of high voltage currents and even of lightning.

Another object is to give certain portions of the device such a conformation as will tend to prevent the formation of a continuous conducting path upon the surface, because of deposits of dust, soot, dirt, etc.

Another object is to so form the device as to cause the accumulation of dust, soot, etc., to be washed off by the rain, and at the same time permit the rain or moisture to drip off quickly, thereby preventing the creepage of moisture, all of which results in reducing to a minimum, the tendency to arcing or puncturing.

Another object is to provide certain parts of the body member with integral portions extending along and around portions of the strain members thereby improving the insulating value of the device.

Another object is to give the exterior of the insulator such conformation as to tend more effectively to prevent surface leakage and arcing, and at the same time to adapt the device for supporting the conductors in various relations.

Another object is to so construct the device and give it such conformation as to provide a large amount of surface insulation without making the diameter of the body portion of the device of undue proportions.

Another object is to provide an improved form of strain or suspension insulator which will possess in a very high degree dielectric and mechanical strength and at the same time will prevent the line from falling, in the event that the insulator or any part thereof, becomes injured, weakened or destroyed.

Another object is to provide an improved form of strain or suspension insulator which, when connected together, in a chain, will admit the ready addition of other insulators for the purpose of increasing to the maximum degree the insulation afforded.

To attain some of the above enumerated objects, I provide a body portion of insulating material with annular steps on the surface thereof. The annular step formation is also provided on the insulating projections which surround the strain members at the points where the strain members project from the body portion.

Other objects will appear from the subjoined description and claims.

It is my purpose to so construct the insulator that it may be used both as a suspension and as a strain insulator.

Referring to the drawings:

Figure 1 is a vertical longitudinal section upon a plane passing through the insulating material and the strain members, the connecting or outer portion of one of the strain members being shown in dotted lines in its disconnected position.

Fig. 2 is a front elevation of the insulator looking in the direction of the arrow in Fig. 1.

In the drawings in which like reference characters refer to like parts:

10 is the central or body portion of the insulator, the surface of each of the sides of which is provided as at 11 and 12 with an annular step formation. 13 is the central radial projection from the body portion. Strain members 15 and 16 are embedded in the body of the insulator and interlock with each other. One end of each is embedded in the body portion and each strain member is situated respectively in planes which are substantially at right angles to each other. The strain member 15 is a single integral piece provided with a cross bar 15', and is formed in the shape of a chain link. The other strain member 16 is formed in two separate substantially yoke shaped parts 17 and 18, one of the yoke-shaped parts 17 being embedded in the insulating material and is interlocked with the integral strain member 15, the arms of the part 17 projecting a

short distance from the body of the insulator as at 19 and 20. The arms 21 and 22 of the other yoke shaped portion 18 are each removably secured to the embedded portion by any suitable means, preferably a screw-threaded construction hereinafter described. Screw-threads 23 and 24 are formed around the projecting end portions of the embedded member 17. Upon the end of one of the arms of the exposed portion 18 of the strain member is a central cavity 25 having screw-threads 26 cut in its inner surface of such size and arrangement as to engage with the screw-threads 23 of one of the projecting ends of the embedded portion of the strain member. Screw-threads 27 are also cut upon the outer end of the other arm of the removable portion of the strain member and a screw-threaded sleeve 29 fits over the same and engages therewith by a screw-threaded connection. The sleeve has screw-threads 28 formed in the surface of its central opening and the screw-threads of the sleeve also operatively engage with the screw-threads 24 on the projecting portion 20 of one of the arms of the embedded strain member.

By means of this construction, the outer yoke shaped portion of the strain member can readily be disconnected from the portion which is embedded in the insulating material by first unscrewing the sleeve 29 from the fixed arm of the embedded portion of the strain member and then unscrewing the two portions of the strain member from each other. During this operation, the sleeve 29 and the outer removable portion of the strain member either take the position shown in dotted lines in Fig. 1, or they may be entirely removed therefrom by continuing the unscrewing operation.

30 and 31 are projecting portions of the insulator which surround the arms of the embedded strain member 16 and these projecting portions are provided with a series of annular steps 32 and 33 as shown. On the opposite side of the body of the insulator are projecting portions 34 and 35 which are provided on their surfaces with annular steps 36 and 37, and these projections likewise surround the arms 36′ and 37′ of the integral strain member 15 which also is embedded in the body of the insulator.

The body portion of the insulator into which the strain members are embedded, is of substantial thickness. Washers or gaskets 40 and 41 may be provided as shown between the insulation projections and the arms of the outer yoke shaped member 18.

It will be obvious from Fig. 1 that a very large part of the entire surface of the insulator is made up of portions that are perpendicular to each other so that if the insulator is installed with its strain axis in a horizontal direction some of the portions of the surface will be in vertical planes so that layers of soot, dirt, etc., will not easily collect thereon and if the insulator is installed with its strain axis in a vertical direction the other portions of the surface will be in vertical planes with a like result, thus decreasing the danger of having continuous conducting layers to form from one metallic strain member to the other.

I have designated the parts of the strain members as yoke-shaped, and by so doing, it is to be understood that they are not necessarily limited to the exact form of a U as shown, but may be of any form, such as V or staple shaped, which may be included in the broad term yoke-shaped.

The strain members are constructed preferably of metal and the insulating portion of my device may be made of any approved insulating material but I prefer to use in this construction, a material known in the art as "electrose".

It is to be understood that I do not limit myself to the particular shape or form of any part shown, neither do I limit myself to the precise arrangement of the parts with respect to each other; neither do I limit myself, as above stated to any particular insulating material.

It is to be understood that the above description and drawings are merely illustrative and that the invention is not to be limited in any respect except as defined in the subjoined claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An insulator of substantially the shape of a double convex lens having a large portion of its surface consisting of annular portions, the adjacent annular portions being at right angles to each other and being respectively perpendicular to and parallel to the axis of said insulator, said annular portions constituting the surface from the meeting edges of the convex surfaces approximately half way to said axis.

2. A substantially lenticular insulator having interrupting surfaces disposed substantially at right angles to each other so that some of the surfaces will constitute vertical walls when said insulator is mounted in a horizontal position and other surfaces will constitute vertical walls when said insulator is mounted in a vertical position, said interrupting surfaces extending from the meeting edges of the convex surfaces of said insulator approximately one half way to its axis and some of said surfaces being cylindrical and parallel to said axis.

3. A substantially lenticular shaped insulator having strain members emerging from the convex surfaces thereof, said insulator having stepped portions extending substantially from the outside portions of

said strain members to the meeting edges of said surfaces.

4. A substantially lenticular shaped insulator having strain members emerging from the convex surfaces thereof, said insulator having stepped portions extending substantially from the outside portions of said strain members to the meeting edges of said surfaces, and projections from said insulator having stepped portions which surround a part of said strain members.

Signed at the borough of Manhattan, city, county and State of New York, this tenth day of November, 1916.

LOUIS STEINBERGER.

In presence of—

ISABEL R. RICHARDS,

ETHEL D. BARON.