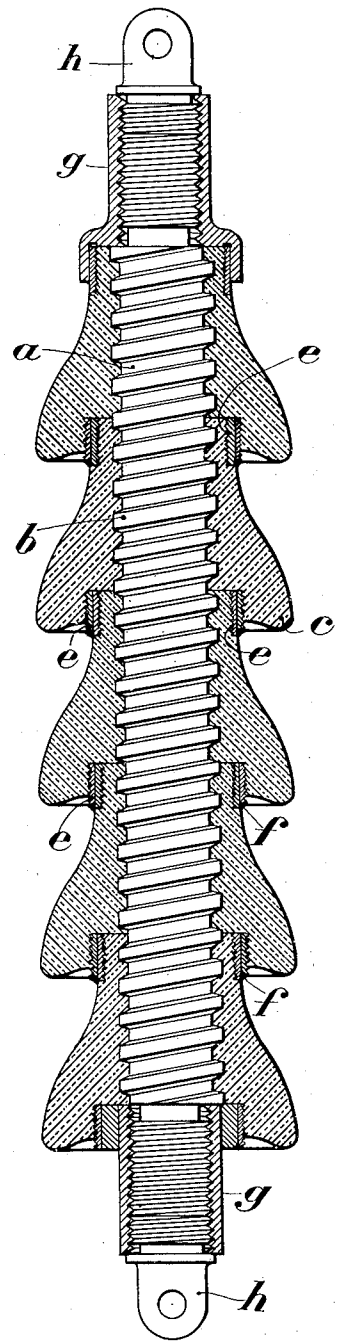
E. HAEFELY.

ELECTRIC INSULATOR.

APPLICATION FILED DEC. 22, 1919.

1,381,189. Patented June 14, 1921.



Inventor.

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ELECTRIC INSULATOR.

1,381,189. Specification of Letters Patent. Patented June 14, 1921.

Application filed December 22, 1919. Serial No. 346,609.

To all whom it may concern:

Be it known that I, EMIL HAEFELY, a citizen of the Swiss Republic, and resident of Basel, Switzerland, have invented new and useful Improvements in Electric Insulators, of which the following is a full, clear, and exact specification.

This invention relates to an electric insulator of the pin, suspension or span wire type which may either be employed as a single insulator or as a number of units connected in a chain or string.

A well known type of insulator comprises a tubular or solid core composed of wound paper provided with metal caps or terminals at its ends constituting suspension eyes by means of which the insulator when of the suspension or span type is supported. Arranged upon this core are a series of insulator units composed of glass, porcelain or pottery, the space between the core and the insulating units being filled with a suitable compound for preventing the entrance of moisture. Insulators constructed in this manner are not, however, satisfactory owing to the fact that the accumulation of moist air in the space above referred to is inevitable after a time and cannot be avoided, and sets up in the first place a discharge which by reason of the heating associated therewith causes an expansion of the hollow space and thus rapidly leads to spark discharge and finally to direct arcing.

By the employment of the present invention the following advantages are obtained, namely on the one hand the injurious influence of damp air above referred to is obviated and on the other hand the leakage path for a given length of the core itself can be increased to any required extent. For this purpose the tubular or solid core is according to the present improvement provided with a coarse screw thread on which the insulator units, which are provided with corresponding internal coarse screw threads, are secured so that a proportionately longer leakage path of zig-zag form is obtained extending throughout the length of the screw threaded passage. The number of insulating units and the corresponding length of the core for insuring the necessary length of leakage path along the screw threaded element is determined by the voltage involved. The insulator units can be constructed of any desired material such as porcelain, glass, pottery or stone-ware or pressed paper material formed of layers stuck and pressed together with the use of artificial or natural resins, or the like.

In a special constructional form of the invention each of the insulator units is provided with smooth metal bushings at both ends arranged to be slidably inserted with close fitting into one another and to be secured together, thus preventing the entrance of air between the core and the insulator units. The joints of these bushings may be soldered.

The connection elements formed by the metal bushings, being considered in the axial direction of the core, also constitute equipotential surfaces which serve to equalize the distribution of the electric field so that the difference of potential between the two ends of the insulator for any given length can be carried to a higher limit than if the metal bushings were not employed without risk of arcing.

The accompanying drawing illustrates by vertical section a constructional form of the invention.

The solid core *a* composed for instance of wound paper having its layers stuck and pressed together is provided with a coarse screw thread *b* by means of which the insulator units *c* (five in number in the example shown in the drawing) are secured, these insulator units being provided with internal coarse screw threads, and being arranged in such a manner that a relatively long leakage path of zig-zag form is provided extending along the whole length of the screw threaded element. Both ends of each insulating unit *c* are provided with smooth metal bushings *e*. The metal bushings *e* carried respectively by adjacent insulator units are tightly fitted into one another by slidable insertion and soldered or otherwise secured together as indicated at *f* so that no damp air can enter between the core and the insulator units. Secured to each end of the core *a* are metal caps or terminals *g* which are similarly secured to the insulator units at either end of the series so that all moisture is prevented from entering between the core and the metal caps. The latter serve in this case for the support of the insulator as a suspension insulator being provided with two suspension loops or eyes *h*. In a case in which the insulator is to be employed as a pin type

of insulator the lower metal cap will be constructed as a base plate or bracket, the upper one serving as a head or cap.

What I claim is:

1. An electric insulator comprising a core of insulating material, metal caps at the ends thereof, said core being provided with a coarse screw thread, a number of insulating units provided with a corresponding internal coarse screw thread and screwed upon the screw thread of the core, the threading considerably increasing leakage path, substantially as described.

2. An electrical insulator comprising a core of insulating material, metal caps at the ends thereof, said core being provided with a coarse screw thread, a number of insulating units provided with a corresponding internal coarse screw thread and screwed upon the screw thread of the core, smooth metal bushings at the ends of the insulating units for tight insertion into one another, substantially as described.

3. An electric insulator comprising a core of insulating material, metal caps at the ends thereof, said core being provided with a coarse screw thread, a number of insulating units provided with a corresponding internal coarse screw thread and screwed upon the screw thread of the core, and means to tightly secure the metal caps of the core to the corresponding insulating units, substantially as described.

In witness whereof I have hereunto signed my name this 28th day of November, 1919, in the presence of two subscribing witnesses.

EMIL HAEFELY.

Witnesses:

WILLIAM E. HOLLAND,

AMAND BRAUN.