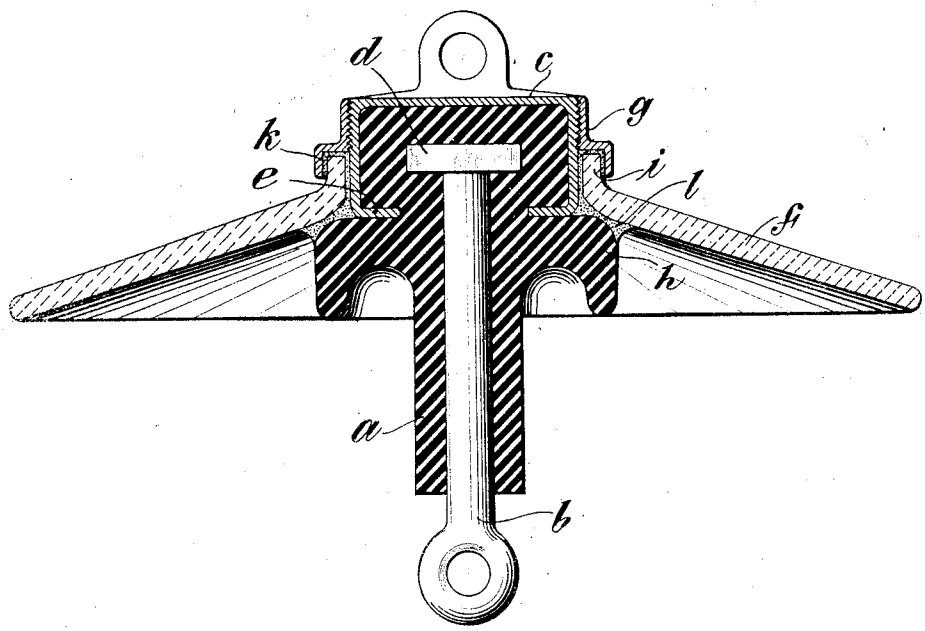
L. M. RANDOLPH.

INSULATOR.

APPLICATION FILED OCT. 17, 1910.

1,035,231. Patented Aug. 13, 1912.



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UNITED STATES PATENT OFFICE.

LEONARD M. RANDOLPH, OF NEWARK, NEW JERSEY.

INSULATOR.

1,035,231. Specification of Letters Patent. Patented Aug. 13, 1912.

Application filed October 17, 1910. Serial No. 587,372.

To all whom it may concern:

Be it known that I, LEONARD M. RANDOLPH, a citizen of the United States, and a resident of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Insulators, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

Porcelain, on account of its comparative cheapness, convenience in molding, and good insulating qualities, is desirable for use in the manufacture of insulators of various kinds; but owing to the difficulty of molding metal parts therewith, such as is required in certain types of insulators, other and less desirable substances have been employed. It is true that attempts have been made to mold metal parts in porcelain insulators, though such attempts have generally failed on account of the difference in the expansive properties of the metal and porcelain. Moreover metal parts have been cemented in porcelain but in use they generally work loose from vibration and other causes and become detached from or result in the fracture of the porcelain.

The object of the present invention is to provide a construction whereby it will be possible to make use of porcelain in insulators requiring metallic parts without encountering the difficulties heretofore mentioned.

In accordance with the present improvements, the body portion of the insulator with which the metallic parts are associated is formed of an insulating composition having substantially the same coefficient of expansion as that of the metallic parts, and compensating means are provided for uniting the body portion with the porcelain part.

The single figure of the drawing represents a central vertical section taken through an insulator of the suspension type, though it will be understood that the invention may be embodied in insulators of various types and that the present type is chosen as illustrative merely.

The body portion of the insulator, indicated at (*a*), has embedded therein a suspending bolt (*b*) and a metallic cup piece (*c*) the head (*d*) of the bolt extending up into the cup (*c*) beyond the flange (*e*) thereof, as in similar constructions. The insulating composition constituting the body portion (*a*) may be of any suitable substance or combination of materials which is moldable with the metallic parts and which has substantially the same coefficient of expansion as these parts. Most of the gummy or resinous insulating compositions would answer this purpose, applicant's own composition derived from the residue of varnish kettles and known as varnish residue being preferred. The other portion of the insulator, namely the portion surrounding the body portion, is generally made up of what is referred to as a petticoat or petticoats. In the present case this portion of the insulator consists of a flaring piece (*f*) open at the center so as to slip on the body portion of the insulator from the top and rest down upon a shoulder (*h*) formed upon the body portion. While the present improvements were designed so that porcelain, which has a different coefficient of expansion from that of the body portion and the metallic parts, may be used to make the petticoat, it will be obvious that other suitable materials may be used therefor. Porcelain, however, is preferable.

To unite the porcelain petticoat (*f*) to the body portion, means must be provided which shall compensate for the difference in the expansion properties of the petticoat and the body portion and at the same time prevent the petticoat from vibrating or rattling upon the body portion. Such means may preferably comprise a metallic ring (*g*) threaded upon the cup (*c*) or upper part of the body portion which bears down upon the petticoat (*f*) and a layer of plastic or soft material (*l*) interposed between the ring and body portion on the one hand and the petticoat on the other. This soft plastic material preferably consists of a mixture of oil, paraffin wax, and red oxid of iron although many other plastic waterproof mixtures may serve as well—such for example, as partially vulcanized rubber. Moreover, the petticoat is preferably formed with a flange (*i*) around the central opening and the ring (*g*) with an outwardly and downwardly extending flange (*k*) to project over the flange (*i*) in order to effectively retain the petticoat in position and to afford a watertight joint between the same and the body portion.

It will be obvious that more than one petticoat may be employed, that various

other forms of porcelain parts may be added to the body portion which are not, properly speaking, "petticoats," and that the construction set forth here may be otherwise departed from and added to without departing from the spirit of the invention.

I claim as my invention:—

1. In an insulator, the combination with a body portion, and metallic parts molded therein, said body portion having substantially the same coefficient of expansion as the metallic parts, of a petticoat having a different coefficient of expansion, and compensating means to unite the petticoat to the body portion of the insulator.

2. In an insulator, the combination with a body portion, and metallic parts molded therein, said body portion having substantially the same coefficient of expansion as the metallic parts, of a petticoat having a different coefficient of expansion, and means including a plastic waterproof medium for uniting the petticoat to the body portion of the insulator.

3. In an insulator, the combination with a body portion, and metallic parts molded therein, said body portion having substantially the same coefficient of expansion as the metallic parts, of a petticoat having a different coefficient of expansion, the body portion of the insulator being formed so as to sustain the petticoat, and a ring bearing against the top of the petticoat to hold it against the body portion.

4. In an insulator, the combination with a body portion, and metallic parts molded therein, said body portion having substantially the same coefficient of expansion as the metallic parts of a petticoat having a different coefficient of expansion, the body portion of the insulator being formed so as to sustain the petticoat, a metallic ring threaded to the body portion and bearing down upon the top of the petticoat, a circular flange on the ring projecting over the top of the petticoat, and a layer of plastic material interposed between the ring and body portion on the one hand and the petticoat on the other.

5. In an insulator, the combination with a body portion of insulating composition, and metallic parts molded therein, said insulating composition having substantially the same coefficient of expansion as the metallic parts, of a porcelain petticoat, and compensating means to unite the petticoat to the body portion of the insulator.

This specification signed and witnessed this 10th day of October, A. D. 1910.

LEONARD M. RANDOLPH.

Signed in the presence of—
JOHN W. THOMPSON,
LUCIUS E. VARNEY.