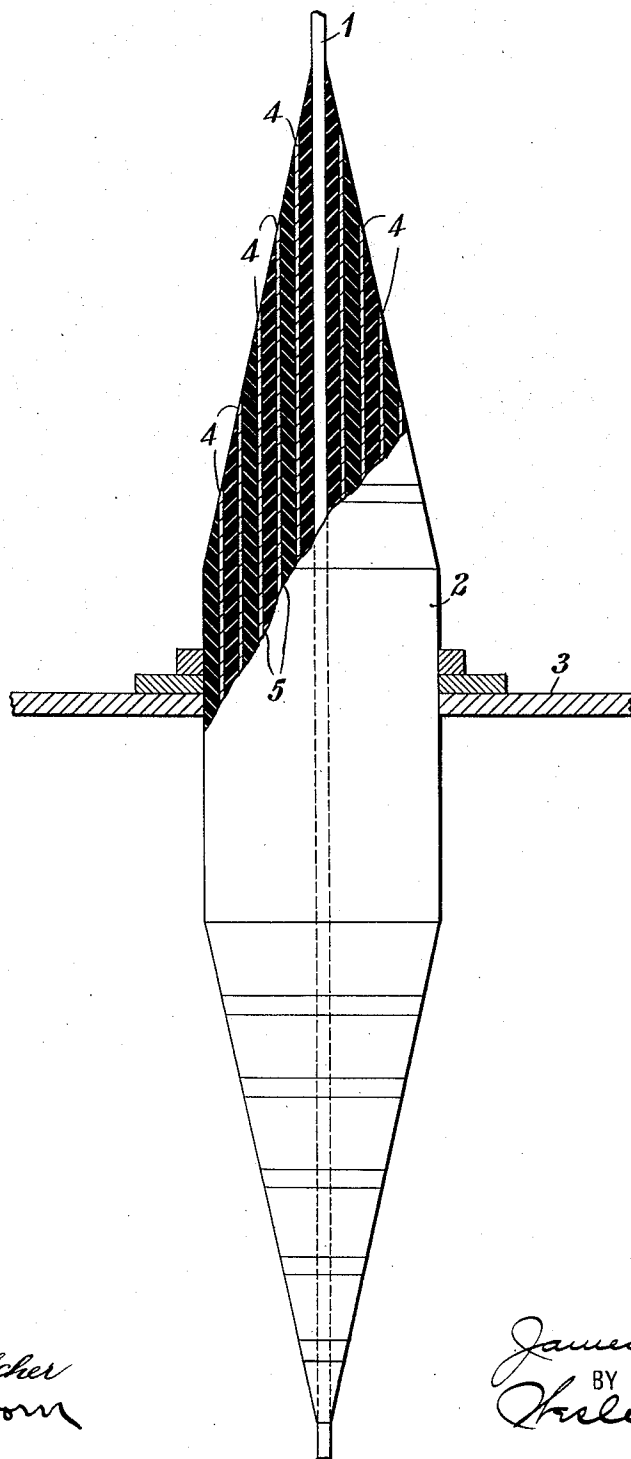


J. C. DOW.
INSULATING MATERIAL.
APPLICATION FILED JULY 5, 1907.

952,513.

Patented Mar. 22, 1910.



WITNESSES:

C. L. Belcher
R. J. Earborn

INVENTOR

James C. Dow
BY
Wiley E. Carr
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES C. DOW, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

INSULATING MATERIAL.

952,513.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed July 5, 1907. Serial No. 382,390.

To all whom it may concern:

Be it known that I, JAMES C. DOW, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Insulating Materials, of which the following is a specification.

My invention relates to insulators for high-potential electrical circuits, and it has for its object to provide an insulating body in which the strains will be prevented from concentration upon or adjacent to outer surfaces but will be distributed throughout the thickness of the body.

The invention consists in constructing an insulator of alternate layers of suitable insulating and conducting materials, a series of condensers being thereby provided between the external surfaces of the insulator whereby the total strain to which the insulator is subjected is distributed throughout the thickness of the insulating material.

The single figure of the accompanying drawing is a view, partially in elevation and partially in section, of an insulating bushing that embodies my invention.

In the drawing, a rod or bar 1 of any suitable conducting material, which may constitute a circuit lead, is provided with an insulating bushing 2 by which it is insulated from a metal casing or supporting bracket 3. The insulating bushing 2 is preferably constructed as set forth in Patent No. 858,385, granted July 2, 1907, to the Westinghouse Electric & Manufacturing Company, as assignee of Emil Haefely, sheets 4 of tinfoil or other suitable conducting material being interposed at convenient or desired intervals between the convolutions 5 of insulating material during the construction of the bushing.

The metallic sheets 4 form with each other and with the conductor 1 a series of condensers in which the strains upon the insulation are proportional to the differences of potential between the sheets. The strain upon the insulating bushing is, therefore, distributed throughout its thickness and is not concentrated upon its inner surface, as has heretofore been the case. The thickness of the bushing, for a given strain, may, therefore, be materially reduced over what would be necessary if the metallic sheets

were omitted from the structure. The amount of surface leakage is also materially reduced by means of this structure.

The best results may be secured by so constructing the insulating bushing that the condensers which constitute the series may be of equal capacities, and if the condenser plates are of substantially equal areas the most economical and compact product may be obtained.

I claim as my invention:

1. An insulating bushing comprising a plurality of continuous convolutions of suitable insulating material, and separate convolutions of conducting material interposed in the bushing at intervals.

2. An insulating body comprising convolutions of sheet insulating material and convolutions of sheet conducting material between adjacent insulating convolutions.

3. An insulating body comprising a series of condensers having conducting layers of substantially equal areas and separating insulating layers of substantially equal thicknesses.

4. An insulating bushing comprising a plurality of substantially concentric metal cylinders and separating insulating cylinders, the metal cylinders being of equal areas and the insulating cylinders of equal thicknesses.

5. An insulating bushing comprising substantially concentric metal and insulating cylinders of unequal lengths which are alternately disposed to constitute a series of condensers.

6. An insulating bushing comprising substantially concentric metal cylinders of graded lengths, the longer cylinders being within the shorter, and spacing insulating cylinders which cooperate with said metal cylinders to constitute a series of condensers.

7. An insulating body comprising a plurality of similar metallic members having substantially parallel surfaces and spacing insulating cylinders which cooperate therewith to constitute a series of condensers of equal capacities.

8. An insulating body comprising alternate layers of insulating and conducting materials constituting a plurality of condensers of equal capacities in series circuit relation.

9. An insulating body comprising a plurality of equally spaced conducting layers

of substantially equal areas and interleaved layers of insulation which cooperate therewith to constitute a series of condensers.

10. An insulating bushing comprising a plurality of equally spaced substantially concentric metal cylinders and separating insulating layers, the ends of said bushing being tapered to increase the surface distances between the ends of the adjacent

metal cylinders and to make the areas thereof substantially equal.

In testimony whereof, I have hereunto subscribed my name this 28th day of June, 1907.

JAMES C. DOW.

Witnesses:

R. J. DEARBORN,
BIRNEY HINES.