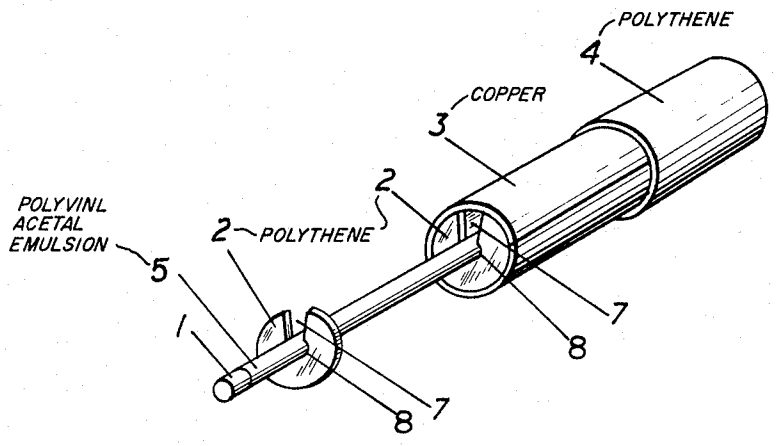
July 19, 1966 F. GEE-WAH ETAL 3,261,906

CABLE CONDUCTORS HAVING A MATERIAL BINDER

Filed Sept. 21, 1964



Inventors
FREDERICK GEE-WAH, FRANCIS B. COPE & ROBERT A. MARSH

By Percy P. Lantzy
Attorney

United States Patent Office

3,261,906
Patented July 19, 1966

1

3,261,906

CABLE CONDUCTORS HAVING A MATERIAL BINDER

Frederick Gee-Wah, Francis Bernard Cope, and Robert Arthur Marsh, London, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 21, 1964, Ser. No. 397,830
Claims priority, application Great Britain, Nov. 11, 1963, 44,377/63
2 Claims. (Cl. 174—28)

This invention relates to air-spaced coaxial cables.

When an inner conductor for an air spaced coaxial cable is manufactured from an oversize copper wire by drawing the wire through a die to reduce it to the correct diameter it has been found that there is a tendency for portions of the conducting material to be formed which have a tendency to curl away from the conductor when the conductor is wound on a drum and so have the undesirable effect of reducing the ionisation potential between the inner and outer conductor of the coaxial cable. This may cause corona discharges whilst the cable is in use resulting in a loss in the potential fed along the coaxial cable to a repeater amplifier, and more important, causes noise interference over the whole transmission band frequency of the coaxial cable.

According to the present invention there is provided an air-spaced coaxial cable which includes a centre conductor having on its outer surface a coating of material which possesses sufficient mechanical strength to bind to the conductor any portions of conducting material which may otherwise project from the surface of the conductor.

In the accompanying drawing, which illustrates an embodiment of the present invention, there is shown a perspective view of an air-spaced coaxial cable with the outer portions cut back to reveal the inner conductor.

Referring to the drawing a copper inner conductor **1** is provided with disc spacers **2** of polythene spaced along a copper outer conductor **3**. The outer conductor **3** is enclosed in a polythene sheath **4**.

The inner conductor is coated, in this instance, with a polyvinyl acetal emulsion **5** having a thickness of less

2

than one ten thousandths of an inch. The disc spacers **2** have slots **7** and central holes **8** of a smaller diameter than the conductor **1** so that the disc spacers **2** are sprung on to the conductor **1** by forcing the conductor **1** through the slots **7** into the holes **8**.

The outer conductor **3** is formed by longitudinally folding a copper tape round the disc spacers **2** so that the longitudinal edges of the copper tape abut one another. The polythene sheath **4** is extruded around the outer conductor **3**.

The change in the impedance and attenuation caused by the coating **5** was found to be less than 0.1% of the impedance and attenuation of the same cable with an inner conductor not coated.

The polyvinyl acetal emulsion coating **5** may be replaced by a coating of any electrically conducting or insulating material which possesses sufficient mechanical strength to bind any portions of conducting material which may otherwise project from the surface of the conductor for example, the polyvinyl acetal coating may be replaced by a coating of an epoxy resin, a polystyrene composition, or copper plating.

What we claim is:

1. An air-spaced coaxial cable which includes a centre conductor having on its outer surface a means for binding to the conductor any portions of conducting material which may otherwise project from the surface of the conductor, comprising a coating of a material which possesses sufficient mechanical strength and a thickness not exceeding 0.0001 inch.

2. An air-spaced coaxial cable as claimed in claim **1** in which the coating is a polyvinyl acetal emulsion.

References Cited by the Examiner

UNITED STATES PATENTS

2,060,162	11/1936	Boe	174—28
2,808,450	10/1957	Peters	174—102

LARAMIE E. ASKIN, *Primary Examiner.*
JOHN F. BURNS, *Examiner.*
D. A. KETTLESTRINGS, *Assistant Examiner.*