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G. A. SEELEY

2,128,434

SPACING MEMBER

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FIG. 1

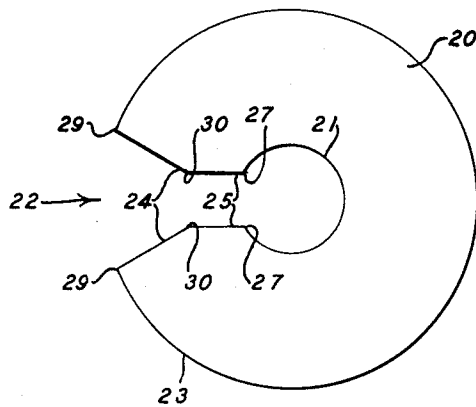
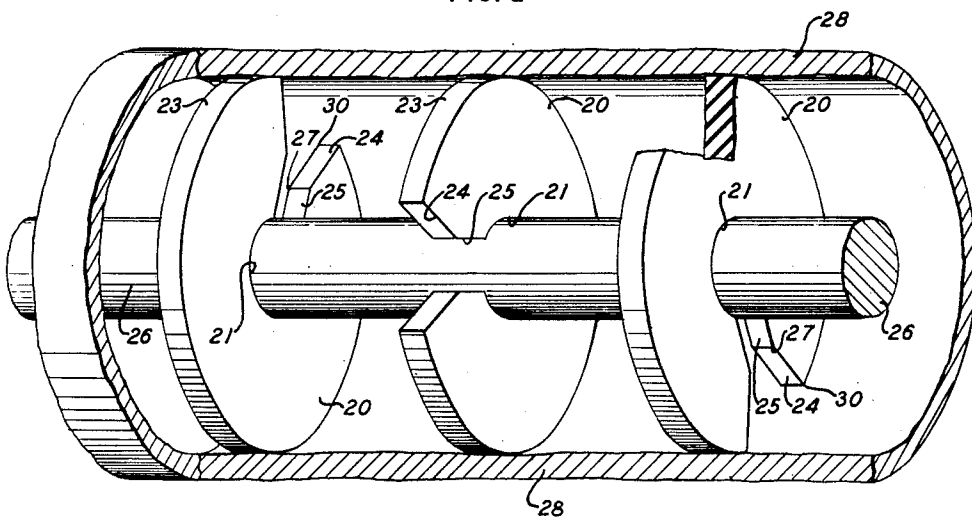


FIG. 2



INVENTOR
G. A. SEELEY
BY

ER. Nowlan

ATTORNEY

UNITED STATES PATENT OFFICE

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SPACING MEMBER

George A. Seeley, Baltimore, Md., assignor to
Western Electric Company, Incorporated, New
York, N. Y., a corporation of New York

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4 Claims. (Cl. 173-265)

This invention relates to a spacing member and more particularly to an insulating spacing member for electrical conductors.

In the manufacture of certain types of multi-conductor electric cables in which the dielectric is principally gaseous, variously slotted or perforated washers or other members of a suitable solid insulating material are used to space the conductors apart and to hold them securely in the proper positions relative to each other.

An object of the present invention is to provide a spacing member for such structures which shall be simple and easy to place in position, shall retain its position securely when placed and shall be so formed as to resist permanent deformation both while being placed and during the subsequent life of the cable.

A characteristic embodiment of the invention contemplates a flat, generally circular disc to be applied to or mounted on a cylindrical conductor by means of a perforation of the disc to receive the conductor and a specially formed slot or passageway cut from the outer periphery of the disc to the perforation, the slot comprising an angularly tapered or convergingly walled entrance from the disc periphery and a parallel sided passage therefrom to the perforation.

Other objects and features of the invention will appear from the following detailed description of one embodiment thereof taken in connection with the accompanying drawing in which the same reference numerals are applied to identical parts in the several figures and in which

Fig. 1 is a view in side elevation of a spacing member constructed in accordance with the invention, and

Fig. 2 is a broken view in perspective of such members used in a coaxial conductor cable.

The spacing member 20 disclosed in Fig. 1 is a generally circularly disc shaped piece of suitable insulating material having a central circular perforation 21 and a radial passageway 22 from the outer periphery 23 to the perforation. The passageway 22 comprises a tapering entrance portion 24 at its outer end and a parallel sided portion 25 leading from the entrance to the perforation.

The material of which the member 20 is made will vary somewhat with the nature of the conductors with which it is to be associated and the ultimate service for which the combination is destined. Generally it will be an insulating material having sufficient elasticity to permit it to spring and allow an unyielding conductor 26 of diameter equal to or slightly greater than the

diameter of the perforation 21 to be forced sideways through the entrance 24 and the passage 25 into the perforation into the position shown in Fig. 2. For some purposes the member 20 may well be made of rubber of a suitable degree of hardness from a quite soft, elastically yielding and frictionally clinging kind to a thoroughly hard ebonite type. For other ultimate uses, an artificial resin either alone or combined with a fabric, fiber, paper or other analogous base is preferable. Again it may well be made from other suitable products such as Celluloid, casein plastics, horn, paper impregnated with shellac, cellulose acetate or other cellulose plastics, shellac plastics, or other material of suitable electrical and physical properties. In any such instance the member may be molded or may be punched from a sheet of the material.

In the manufacture of such a coaxial cable as is shown fragmentarily in Fig. 2, spacing members 20 are put on a central conductor 26 which may be a solid wire or rod, or a cylindrical tube, or an intertwisted or interbraided group of small wires or other suitable conductive strand having a generally cylindrical outer surface. The members 20 are put in place on the conductor 26 by forcing them edgewise transversely over the conductor or by pushing the conductor radially into the members. Generally this is done in such fashion that the passages 22 are oriented successively in different radial directions along the conductor, and the successive members are spaced apart along the conductor at whatever predetermined intervals are the optimum for the purpose in hand.

The perforation 21 being originally a trifle smaller in diameter than the conductor 26, the member 20 when forced into place on the conductor grips the same tightly without need for any staking or other deformation of the conductor to hold the member against sliding thereon. The weakest part of this grip is naturally at the points or corners 27 where the passage 25 enters the perforation 21. By making the passage as shown with the parallel part 25 between the tapered part 24 and the perforation, the corners 27 are backed up by the material behind the parallel walls; whereas if the passage tapered between converging walls from its mouth to the perforation, these corners having no such support would tend to yield and the whole member 20 to become loose and easily displaceable on the conductor 26.

The coaxial conductor pair is completed by forming the outer conductor 28 over the outer periphery 23 of the members 20 as a shell or tube coaxial with the conductor 26 and spaced and

supported therefrom by the members 20. The outer conductor 28 as here disclosed may be thought of as a tube formed by rolling up a strip or tape of thin sheet metal either longitudinally or of the tape or spirally.

While the slot 22 is disclosed as defined between walls which converge from the outer corners 29 to the middle corners 30 and are then parallel to the inner corners 27, this is only a preferred form and it will be clear that practically any substantially convex contour 27, 30, 29 will give the same general result of affording material behind the corners 27 to support them.

The embodiment of the invention herein disclosed is illustrative only and may be modified and departed from in many ways without departing from the spirit and scope of the invention as pointed out in and limited only by the appended claims.

What is claimed is:

1. In a coaxial conductor cable having an outer and an inner conductor, an insulating member interposed between the conductors of the cable and formed and proportioned to have a peripheral surface to abut against the inner surface of the outer conductor, an axial perforation to receive the inner conductor and spaced from the peripheral surface, and a slot extending from the surface to the perforation and comprising an outer tapering portion between converging walls and an inner straight portion between parallel walls.

2. In a coaxial conductor cable having an outer and an inner conductor, an insulating member interposed between the conductors of the cable and formed and proportioned to have a peripheral surface to abut against the inner surface of the outer conductor, an axial perforation to re-

ceive the inner conductor and spaced from the peripheral surface, and a slot extending from the surface to the perforation and comprising an outer tapering portion between converging walls and an inner straight portion between parallel walls, the inner straight portion of the slot being of width less than the diameter of the perforation.

3. In a coaxial conductor cable having an outer and an inner conductor, an insulating member interposed between the conductors of the cable and formed and proportioned to have a peripheral surface to abut against the inner surface of the outer conductor, an axial perforation to receive the inner conductor and spaced from the peripheral surface, and a slot extending from the surface to the perforation and having its defining walls convex toward each other so that the corners formed where the slot enters the perforation are substantially supported by material behind the same.

4. In a coaxial conductor cable having an outer and an inner conductor, an insulating member interposed between the conductors of the cable and formed and proportioned to have a peripheral surface to abut against the inner surface of the outer conductor, an axial perforation to receive the inner conductor and spaced from the peripheral surface, and a slot extending from the surface to the perforation and having its defining walls convex toward each other so that the corners formed where the slot enters the perforation are substantially supported by material behind the same, the entrance of the slot into the perforation being of less width than the diameter of the perforation.

GEORGE A. SEELEY.