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TERMINUS FOR CONCENTRIC TRANSMISSION LINES

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Fig. 1.

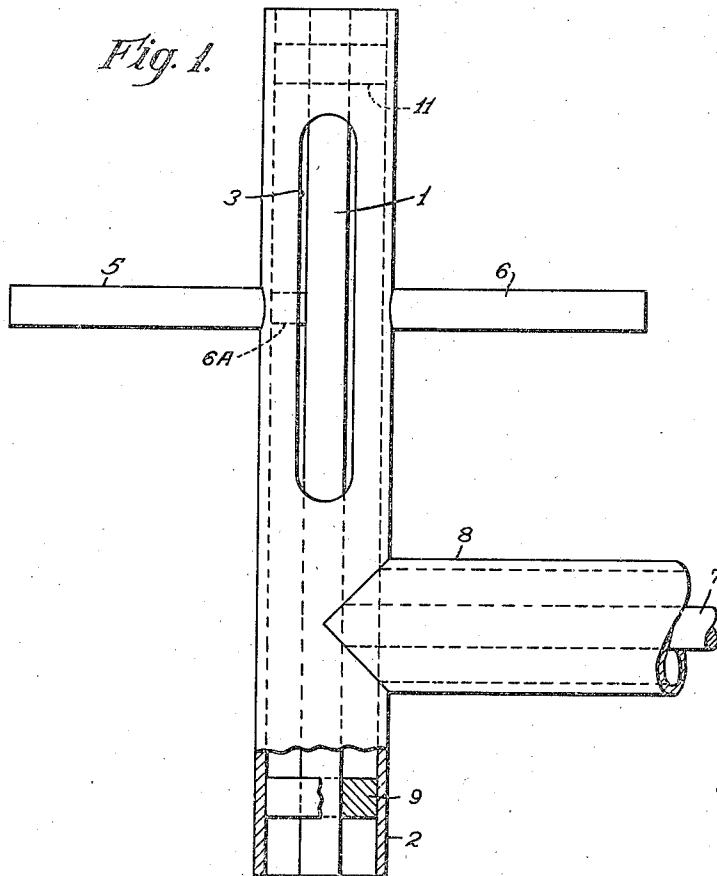
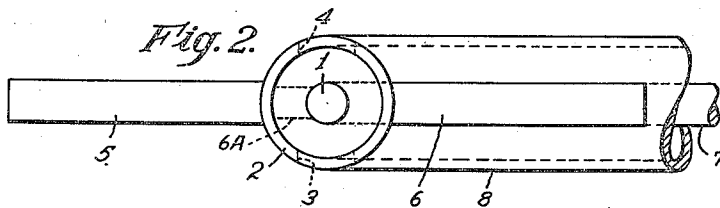


Fig. 2.



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TERMINUS FOR CONCENTRIC
TRANSMISSION LINES

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6 Claims. (Cl. 250—33)

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My invention relates to antennas for radiating or receiving radiant energy and, in particular, relates to such antennas to be supplied for concentric transmission lines.

One object of my invention is to produce an antenna of the dipole type for connection to a concentric transmission line which shall be of extremely simple structure.

Another object of my invention is to produce an antenna of the dipole type for use with concentric transmission lines which shall be particularly well adapted for ultra short-wave service.

Still another object of my invention is to provide an antenna for connection to a concentric transmission line for short-wave service in which the outside conductor of the concentric line shall have a high impedance to ground when viewed from the antenna.

Yet another object of my invention is to produce a dipole antenna at the terminus of a concentric transmission line which shall be low in first cost, and which shall be of good mechanical design.

Other objects of my invention will become apparent upon reading the following description, taken in connection with the drawing, in which:

Figure 1 is a view in elevation of an antenna embodying the principles of my invention; and Fig. 2 is a view in top plan of the antenna of Fig. 1.

Referring in detail to the drawing, a concentric transmission line of conventional type has a central conductor 1 spaced away and insulated from a tubular outer conductive sheath 2. To produce a satisfactory dipole antenna for radiating energy from the end of the concentric line, the outer tubular conductive sheath 2 is provided with a pair of longitudinal slots 3, 4, having a length equal to one-half the wave length of the alternating current with which it is intended to energize the antenna. The slots 3, 4 are wide enough not to arc over under the voltage stress produced across the slots by currents flowing in the concentric line. A pair of conducting arms 5, 6, perpendicular to the sheath 2, are provided at the middle of the slots 3, 4 and extend along a diameter of the concentric line which is normal to the axis thereof. The arms 5 and 6 are of conductive material and may each have a length substantially equal to one-half wave length of the current traversing the line. The core 1 is conductively connected by a bridge 6A to the conductive sheath, preferably at a point aligning with one of the arms 5, 6.

Power is fed to the concentric line from a

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branch line 7, 8 and a pair of movable plugs 9, 11 of conducting material connecting the core 1 to sheath 2 are arranged to be displaced along core 1 to positions at which they match the impedance of the antenna to the transmission line.

I claim as my invention:

1. A terminus for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line and having their mid-points at substantially the same location along the axis of said line as the points where said arms join said sheath, said bridge lying between and on one side only of said slots.

2. A terminus for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line, said arms being normal to the axis of said line substantially opposite the mid-points of said slots, said bridge lying between and on one side only of said slots.

3. A fitting for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line and having their mid-points at substantially the same location along the axis of said line as the points where said arms join said sheath, the length of said slots being substantially one-half wave length of the operating wave length, and said bridge lying between and on one side only of said slots.

4. A fitting for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line and having their mid-points at substantially the same location along the axis of said line as the points where said arms join said sheath, said arms being

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normal to the axis of said line, the length of said slots being substantially one-half wave length of the operating wave length, and said bridge lying between and on one side only of said slots.

5. A fitting for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line and having their mid-points at substantially the same location along the axis of said line as the points where said arms join said sheath, the length of said slots being substantially one-half wave length of the operating wave length, said bridge lying between and on one side only of said slots and the length of said arms being substantially equal to that of said slots.

6. A fitting for a concentric transmission line comprising a conductive bridge connecting the central core to the sheath of said transmission

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line, a pair of arms of conductive material extending outward from said sheath in a plane passing through the axis of the line, said sheath having a pair of diametrically opposite slots extending parallel to the axis of said line and having their mid-points at substantially the same location along the axis of said line as the points where said arms join said sheath, said arms being normal to the axis of said line, the length of said slots being substantially one-half wave length of the operating wave length, said bridge lying between and on one side only of said slots and the length of said arms being substantially equal to that of said slots.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
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