Jan. 3, 1939. W. WHITE 2,142,226

ANTENNA FOR RADIO TRANSMISSION AND RECEPTION

Filed April 13, 1938

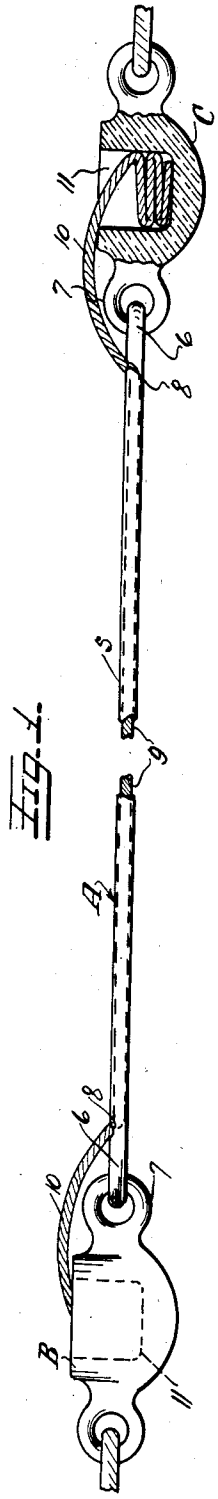


Fig. 1.

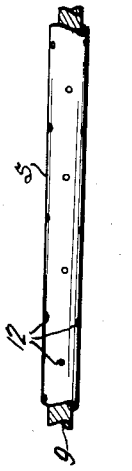


Fig. 4.



Fig. 3.

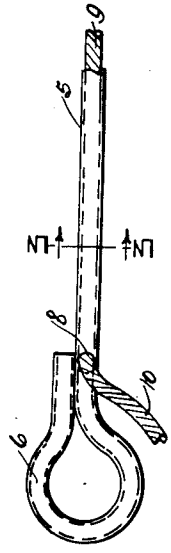


Fig. 2.

INVENTOR
WILBUR WHITE
By Adam E. Fisher
ATTORNEY

Patented Jan. 3, 1939

2,142,226

UNITED STATES PATENT OFFICE

2,142,226

ANTENNA FOR RADIO TRANSMISSION AND RECEPTION

Wilbur White, Salamanca, N. Y.

Application April 13, 1938, Serial No. 201,678

5 Claims. (Cl. 250—33)

This invention presents an improved antenna for radio transmission and reception.

It is a well recognized fact that radio frequency currents, particularly of the higher frequencies, travelling along an antenna conductor actually flow almost in their entirety along the exterior surface of the conductor and not through the entire cross section or "core" of the conductor. As a result it has been found that tubing may be employed for carrying these currents with as great, if not greater, efficiency than ordinary wire. However, this so-called skin effect requires that the conductor have an insulation or coating of some kind over the copper generally used in its make-up in order to prevent corrosion of the conductor such as would increase its resistance to the flow of current. Another well known fact in the radio art having a bearing on this invention is that the collection of rain or moisture of any kind on an antenna not only causes losses and variation in impedances in the matched impedance feed systems generally used but also in the colder climates the collection of moisture and the freezing thereof often renders the antenna system wholly inoperative.

With the foregoing facts in mind it is the prime object of this invention to provide an antenna or conductor in which means is provided for maintaining a film of oil glycerine, alcohol or other liquid on the conductor such as will prevent corrosion and consequent increase in resistance, will prevent the collection of moisture and prevent freezing or formation of ice on the conductor.

A further object is to provide an antenna of this kind wherein a tubular conductor is employed and a fabric wick is run entirely through the conductor with its ends placed in reservoirs formed in the end insulators and filled with the oil or other liquid so that the wick will carry the oil along the entire length of the conductor.

The foregoing and other more detailed objects of the invention will be made apparent in the course of the following specification, reference being had to the accompanying drawing wherein:

Figure 1 is a side elevation of the improved antenna, one of the end insulators being shown in section.

Figure 2 is an enlarged detail plan view of one end of the antenna.

Figure 3 is a cross section along the line 3—3 in Figure 2.

Figure 4 is a fragmental enlarged view of a modified form of conductor.

Referring now with more particularity to the drawing my invention is shown as embodied in the form of a simple antenna A supported horizontally between insulators B and C. It is understood, however, that my invention may be used in any form of antenna system for both the radicating and collecting parts and the feeder systems therefor.

The antenna A comprises a tubular metallic conductor 5 of the proper length and formed at its ends with loops 6 for fastening to the eyes 7 of the insulators B and C. Near each loop 6 an opening 8 is formed in the wall of the conductor 5 and a long cotton or other fabric, wick 9 is threaded through these openings and through the entire length of the conductor. The wick 9 is of such length that its ends 10 will extend freely from the openings 8.

The insulators B and C are each formed with an upwardly opening reservoir well or cup 11 into which these free ends 10 of the wick 9 are placed and coiled up as shown.

The reservoirs 11 are filled with a non-freezing liquid such as oil, alcohol, glycerine or the like and, as a result, the wick 9 will carry or feed the liquid through the conductor 5 by action of capillary attraction.

Preferably the conductor 5 is perforated along its length by small openings 12 formed through its walls and the liquid carried by the wick 9 will thus maintain both the interior and exterior surfaces of the conductor in a moistened condition.

This action will prevent corrosion of the conductor and will thereby greatly facilitate the flow of current therealong. The film of the liquid developed on the conductor will also prevent the collection of either moisture or ice on the antenna and will thus facilitate both transmission and reception.

It is understood that I may vary from the specific structure herein set forth, provided that such variations fall within the scope of the appended claims.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An antenna comprising a tubular conductor, insulators secured at the ends of the conductor, the said insulators having reservoirs for a liquid, and a wick extended through the conductor and placed at its ends in the reservoirs.

2. An antenna comprising a tubular conductor, insulators secured at the ends of the conductor, the said insulators having reservoirs for a liquid, and a wick extended through the conductor and placed at its ends in the reservoirs where-

by the liquid therefrom will be conducted through the conductor.

3. An antenna comprising a tubular conductor, insulators secured at the ends of the conductor, the said insulators having reservoirs for a liquid, and a wick extended through the conductor and placed at its ends in the reservoirs whereby the liquid therefrom will be conducted through the conductor and the said conductor having perforations through its walls.

4. An antenna comprising a tubular conductor, oil supply means adjacent the ends of the conductor and a wick extended lengthwise through the conductor and placed with its ends in the said oil supply means.

5. An antenna comprising a tubular metallic conductor having perforations in its walls, a fabric wick passed lengthwise through the conductor, and means for supplying a non-freezing liquid to the ends of the wick.

WILBUR WHITE.