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Draftsman

Feb. 18, 1930. J. J. McCARTHY 1,747,983

ANTENNA

Filed March 24, 1928

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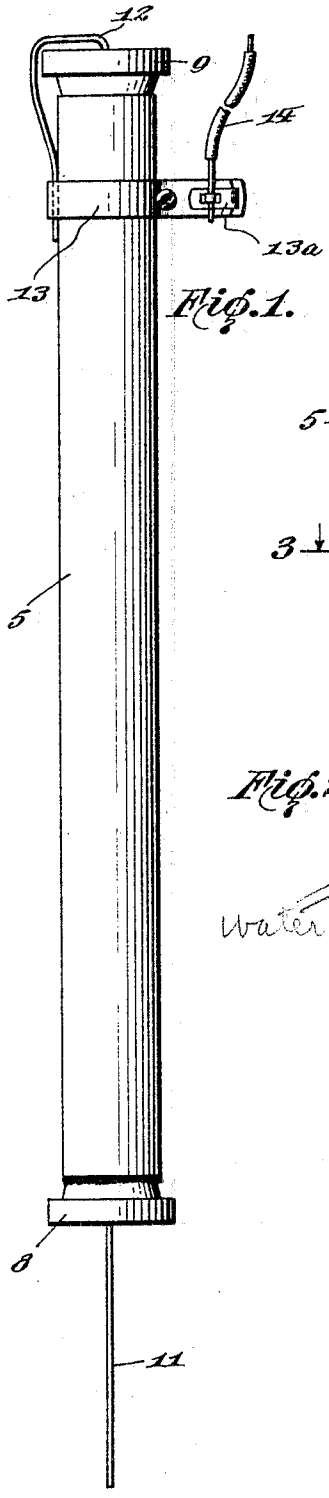


Fig. 1.

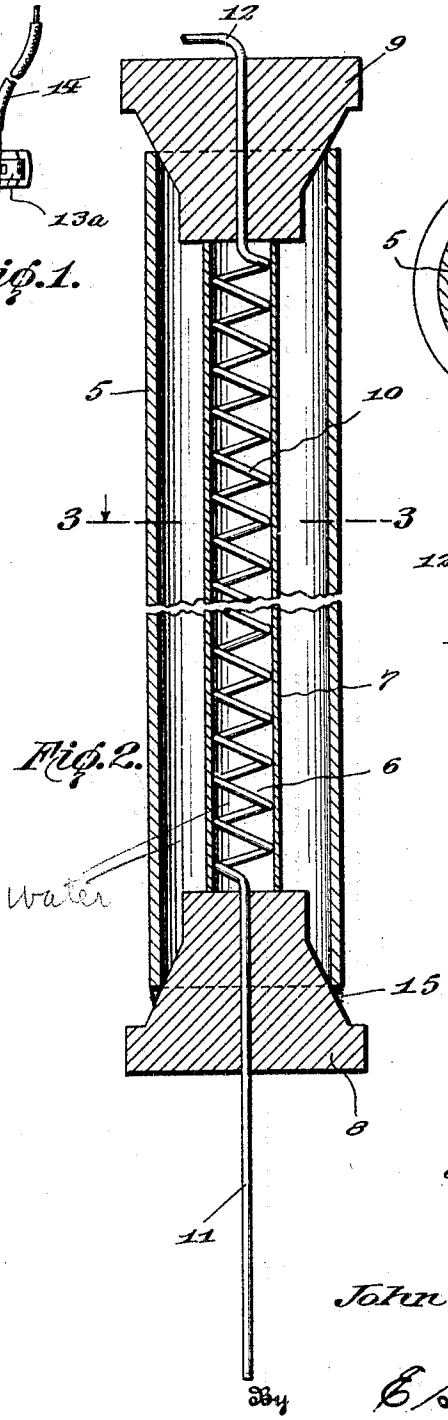
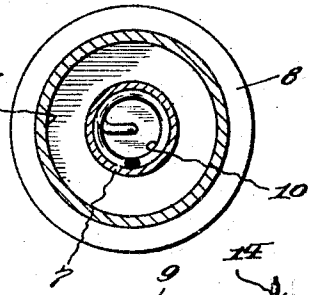


Fig. 2.

Fig. 3.



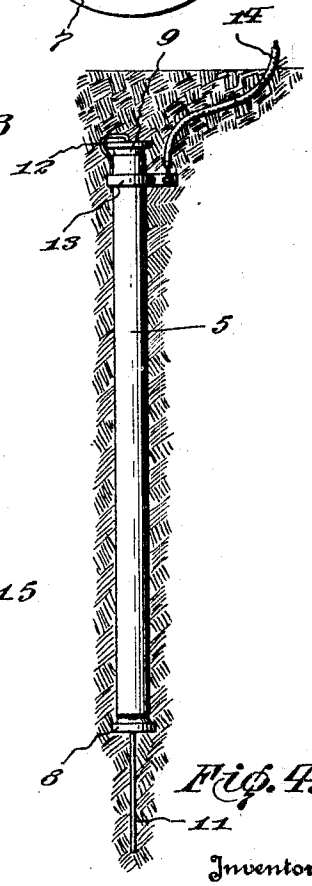


Fig. 4.

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UNITED STATES PATENT OFFICE

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ANTENNA

Application filed March 24, 1928. Serial No. 264,400.

This invention relates generally to antennæ, but specifically has to do with a wave-receiving and collecting device adapted to be embedded in the earth and coupled with a radio receiving set.

Primarily the object of the invention is the provision of a novel antenna embodying a conducting medium adapted to absorb radio waves and set up electric oscillations without resort to the broad and cumbersome expanse of wires now prevalent in the well-known out-door aerial.

Another object is to provide a cooperative assemblage of component parts whereby static interference and stray charges may be reduced to a minimum, and wherein the electrons may be substantially imprisoned to increase the power and volume of the reception.

A still further object of the invention is to provide a novel and unique antenna adapted to be embedded in the earth and incorporating a group of condensers for increasing the potential and imparting a clarity in the tone, and the sensitiveness in a receiving set heretofore unattainable.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination, and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawing, and particularly pointed out in the claims.

In said drawings:

Figure 1 is an elevation of the antenna embodying my invention.

Fig. 2 is an enlarged vertical, central, longitudinal sectional view thereof to illustrate the internal construction of the device.

Fig. 3 is a transverse sectional view, taken substantially on the line 3—3 of Fig. 2; and

Fig. 4 is a view similar to Fig. 1, but illustrating the application and placement of the device.

Referring now in particular to the accompanying drawings, wherein like characters of reference denote similar parts throughout the several views, let 5 denote a hollow member, preferably tubular, and of suitable proportions, and adapted to house or inclose certain other parts of the device, as will presently appear. Upon inspection of Fig. 2, it will be observed that said member 5 is open at both ends to facilitate the insertion of a conductor member 6 contained in a tube 7, the latter being shorter than said tubular member 5, and of smaller diameter, to permit its placement within and concentric with said member 5, centrally apertured closure elements 8 and 9 being insertable in the open ends of said member 5, and having their inner ends abutting or contacting the ends of said tube 7 to positively position the latter as indicated in said figure.

The conductor member 6, previously referred to, comprises a single piece of wire, possessing the quality of relatively high conductivity, having its intermediate portion preferably coiled, as indicated at 10, and snugly fitted within said tube 7, the lower end 11 passing through said apertured closure 8 and extending downwardly a suitable distance, its other end 12 passing upwardly through said apertured closure 9 and being suitably formed to position its terminal portion beneath a clamp 13, embracing the upper portion of said member 5. As shown in Fig. 1, said clamp 13 is provided with spring connecting means 13^a for clasping the end of a lead-in wire 14 having its other end suitably secured to the usual antenna terminal of a receiving set.

In assembling the device the coiled portion 10 of said conductor 6, is placed within said tube 7, the parts being then inserted within the tubular member 5, with the ends 11 and 12 of said conductor 6 protruding beyond the terminals thereof. The apertured closure 8 is then strung along said end 11 and entered within the adjacent open end of said member 5 with its inner portion contacting the end of said tube 7. The other closure 9 is similarly affixed and the mutual contacting of its inner portion with the top edge of said tube 7, assures a definite and fixed positioning of the latter within and concentric with said tubular member 5. The end 12 of said conductor 6 is bent and secured beneath the clamp 13, as pointed out hereinbefore.

The assembled article just described is in

the form it will be presented to the user. Prior to its actual use the end 12 will be released and the closure 9 removed to permit the entry of a fluid, such as water, into the tubular member 5 and said tube 7, whereon said closure 9 will be replaced and the end 12 returned to its position beneath said clamp 13. In order to prevent the escape or leakage of the liquid content of the device, a suitable sealing element, such as wax or the like, may be provided adjacent the end of said member 5, as indicated at 15, and after affixing the end of said lead-in wire 14, the antenna is placed and completely covered in the ground with the end 11 extending downwardly as indicated in Fig. 4.

From the foregoing it is apparent that I have developed an antenna of relatively small proportions and which is adapted for permanent placement in the earth, concealed from view, and possessing the unique advantage in that the broad expanse of overhead wires, and their attendant unsightly appearance, is entirely obviated. The fluid, in the form of water, introduced into the device serves as a conducting medium and combines with the oscillation coil and metal jackets, in the form of tubular members, to absorb radio waves and to set up electric oscillations, thereby increasing potential and adding to the sensitiveness and clarity of tone of a receiving set.

While the present is a disclosure of the preferred embodiment of the invention, it is to be understood that the invention is not limited thereto, as various changes in the minor details of construction, proportion and arrangement of parts may be resorted to without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. A device of the character described comprising a tubular member adapted to contain a fluid, a tube positioned within said member, a conductor passing through said tube and having its terminals extending beyond the ends of said tubular member, one of said terminals being adapted for connection with a receiving set and means for closing the ends of said tubular member and adapted to contact the ends of said tube to position the same in spaced relation to said tubular member.

2. A device of the character described comprising a tubular member adapted to contain a fluid, a tube positioned concentrically within said tubular member and having its ends spaced inwardly from the ends of said member, a conductor passing through said tube, both of its terminal portions extending beyond the ends of said member, one thereof being adapted for connection with a receiving set, said conductor having its intermediate portion coiled and contained in said tube and closure means for closing the ends of said tubular member, the inner ends of said means contacting the ends of said tube to maintain the same in spaced relation with the internal walls of said member.

3. A device of the character described comprising a tubular member adapted to contain a fluid, a tube positioned concentrically within said tubular member and having its ends spaced inwardly from the ends of said member, a conductor passing through said tube and having one end extending outside said tubular member, the intermediate portion of said conductor being coiled and contained in said tube and having its lower end extended beyond the terminal of said tubular member and closure means for closing the ends of said tubular member and for maintaining said tube in spaced relation therewith and for maintaining the fluid between said tubular member and said tube.

In testimony whereof I affix my signature.

JOHN J. McCARTHY.