Oct. 27, 1931. J. W. SPEAKER ET AL 1,828,910

AERIAL ELIMINATOR

Filed Jan. 25, 1930

Fig. 1.

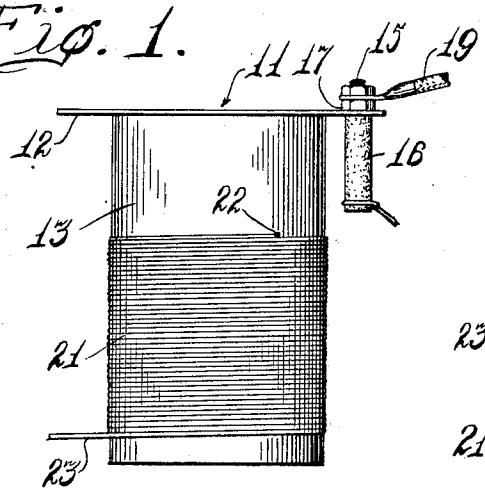


Fig. 2.

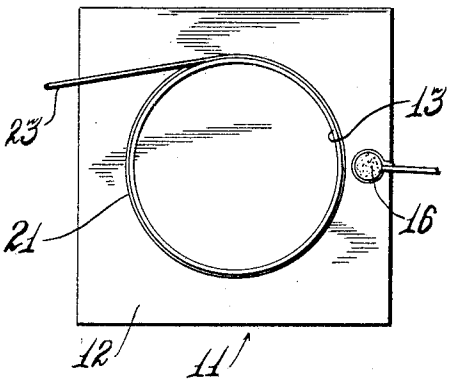


Fig. 3.

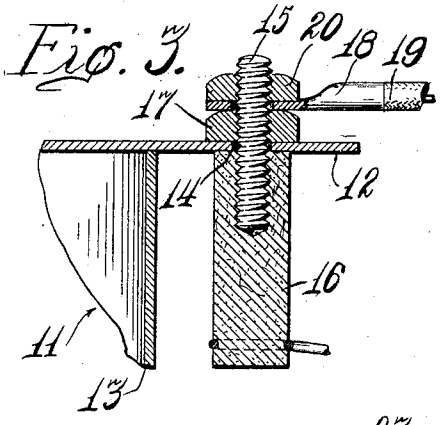
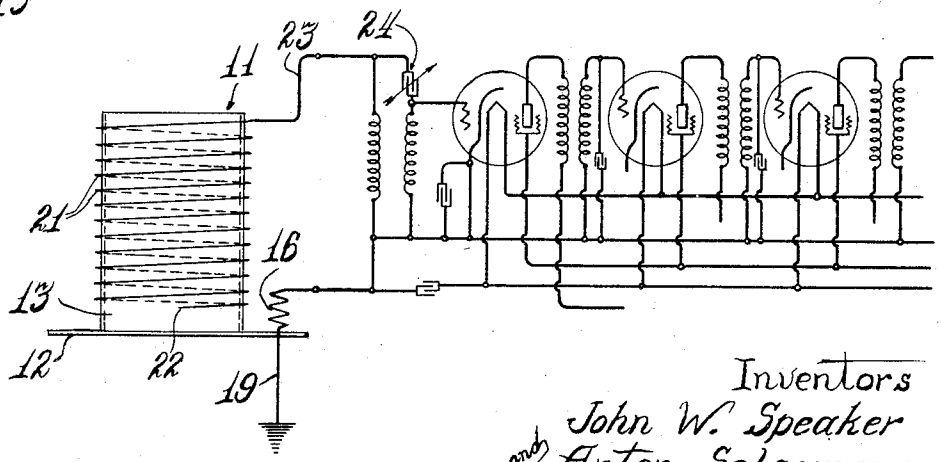


Fig. 4.



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UNITED STATES PATENT OFFICE

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AERIAL ELIMINATOR

Application filed January 25, 1930. Serial No. 423,370.

The invention in general relates to radio receiving apparatus and more particularly to a method and means for the reduction and elimination of static interference or strays from radio receiving apparatus.

An object of the invention is to provide a device of the character indicated adapted to be conveniently attached to and to form a part of a conventional radio receiving set without change or reorganization thereof.

Another object of the invention is to provide a device of the kind indicated, of simple and inexpensive construction with special adaptation for use in a radio receiving apparatus employing screen-grid vacuum tubes.

The foregoing and such other objects of the invention as will appear hereinafter as the description proceeds, will be more readily understood from a perusal of the following specification, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevational view of an embodiment of the device.

Fig. 2 is an inverted plan view.

Fig. 3 is an enlarged fragmentary vertical sectional view through the device showing the static shunt resistance element in detail.

Fig. 4 is a wiring diagram showing the application of the invention to a conventional type of radio receiving apparatus employing screen-grid vacuum tubes.

In carrying the present invention into practice, advantage is taken of the high amplification factor of the screen-grid vacuum tube which permits the invention to be employed as a unitary device not only for eliminating static interference but also as a satisfactory substitute for an antenna. While no method yet devised has proved adequate for the complete prevention of static interference, the present method and means provides a shunt or path of least resistance to static disturbances taking place as modulated carrier waves are being received in the tuned vacuum tube circuits of the radio receiving apparatus, it being assumed that these tuned vacuum tube circuits have been placed in resonance with the particular station which it is desired to receive. The present circuit shown in Fig. 4, it will be understood, is merely typical of any circuit which may be employed for radio reproduction.

With more particular reference to the drawings, 11 designates the device as a unit which preferably comprises a metal plate 12 with which is integrally formed or conductively attached thereto a metal cylinder 13. The plate 12 is of a size sufficient to provide an overhanging edge beyond the periphery of the cylinder 13, said edge having a hole 14 for accommodating the stud 15 to which is fixedly secured a high resistance element 16 which may be of any suitable material, such as carbon. A nut 17 serves to anchor the stud 15 and consequently the resistance element 16 to the underneath side of the plate 12, while the aperture terminal 18 of a conductor 19 is secured on the stud 15 by a lock nut 20. A winding 21 of insulated wire is arranged in the form of a solenoid on the cylinder 13, one end 22 of the winding 21 being insulatively anchored to the cylinder 13 while the other end 23 is connected to the input of the radio receiving apparatus, as diagrammatically shown in Fig. 4. By inspection of Fig. 4, it is noted that the resistance element 16 is grounded at one end while at its other end a connection is made to the filament ground return of the radio receiving apparatus.

When the customary antenna has been replaced by the device 11, electrical oscillations, received in the inductance or winding 21 which in combination with the metal cylinder 13 serves somewhat as a choke coil, are transmitted through end 23 electrostatically to the radio receiving apparatus, a variable space charge connection being shown in the form of the condenser, 24.

As the details of the radio receiving apparatus, shown by way of example, are conventional, it will suffice to explain the functions taking place in the first vacuum tube circuit thereof. On the assumption that the tuned vacuum tube circuits have been placed in resonance with the broadcast wires of the station to be received, it will be found that electrical oscillations will be efficiently received and that the dimunition in energy suffered by the modulated carrier waves in pass-

ing through the radio receiving set, by reason of the high resistance shunt element 16, will not be appreciably noticed. Static interference or strays, however, will find the non-inductive high resistance shunt element 16, in the present case, to offer a path of least resistance to ground, since these strays are assumed to be untuned to the circuits resonated only to the carrier waves desired. The device thus acts in the capacity of a filter circuit for the elimination of static interference while performing the functions of an antenna at the same time.

Although an exemplary form of the invention is shown and described it is to be understood that the device is capable of embodying various changes and modifications without departing from the spirit of the invention or the scope of the appended claim.

We claim:

A device of the character described comprising a metallic plate conductively connected to a metallic core in the form of a cylinder, a winding mounted on said core, a resistance element secured to said plate, said resistance element including a carbon rod extending substantially parallel with said core but spaced therefrom, said plate being conductively connected to said resistance element and having a ground connection, the said winding having an open circuit and an end connected electromagnetically and electrostatically with the input circuit of a radio receiving apparatus.

In testimony whereof we affix our signatures at Milwaukee County, Wisconsin.

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ANTON SELSEMEYER.