

April 23, 1929.

G. W. COOPER

1,710,085

FADING AND STATIC ELIMINATING RADIO ANTENNA

Filed Feb. 20, 1926

Fig. 1.

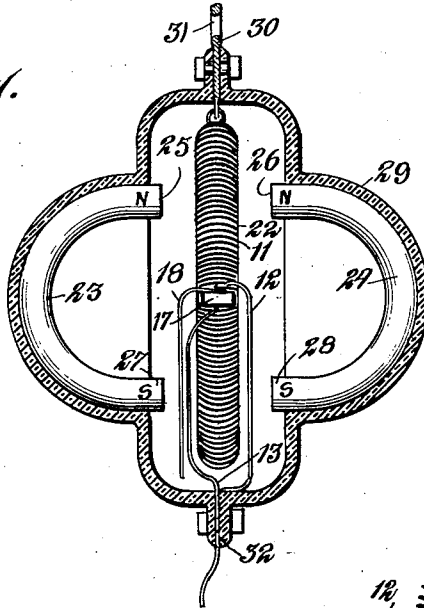


Fig. 2.

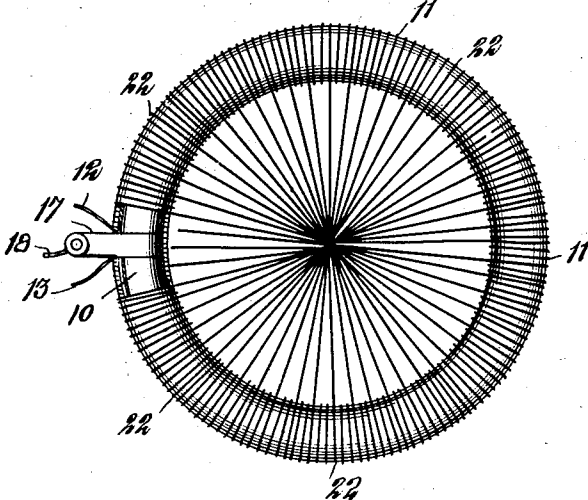
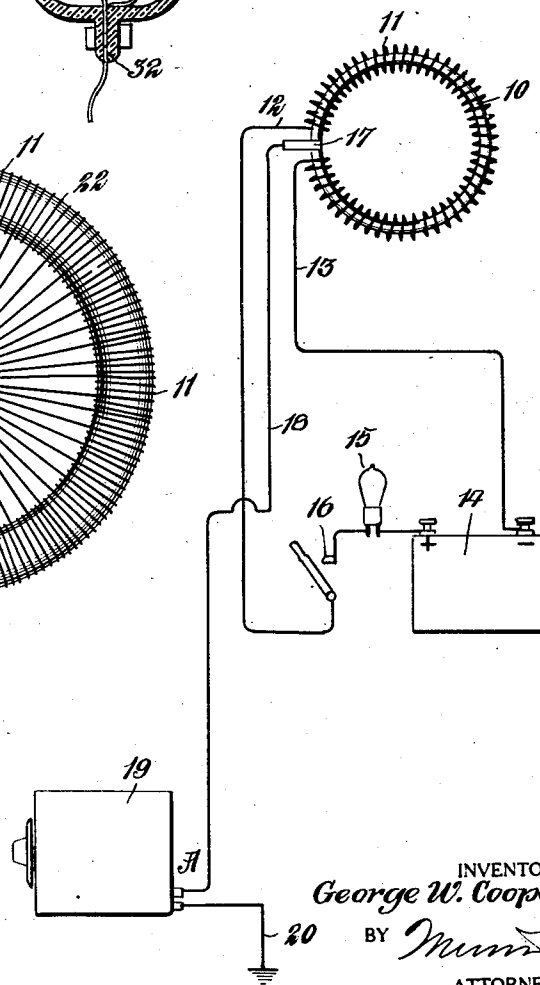


Fig. 3.



WITNESSES

George W. Cooper
Robert J. Hulsizer

INVENTOR

George W. Cooper

BY *Mum Co*

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE WILLIAM COOPER, OF WEST HARWICH, MASSACHUSETTS.

FADING AND STATIC ELIMINATING RADIO ANTENNA.

Application filed February 20, 1926. Serial No. 89,735.

This invention relates to a new and improved form of radio antenna and fading and static eliminator.

An object of this invention is to provide a simple and efficient means whereby signals are received and without the disturbance caused by fading and static.

A further object relates to means whereby the signals so received can be varied in intensity at will, and also induced and forced to the receiver to eliminate fading.

The invention is illustrated in the drawings, of which—

Figure 1 is a vertical section through the antenna;

Figure 2 is a side elevation thereof partly in section;

Figure 3 is a circuit diagram of the antenna and its connection to a radio set.

The form of the invention shown in the drawings is a preferred form, although it is understood that modifications in the construction and arrangement of the parts and in the character of the materials used may be adopted without departing from the spirit of the invention as set forth in the appended claims.

In its general aspect the invention relates to an antenna formed of a magnetic conductor, means associated therewith for establishing a flux through said conductor and a plurality of magnets associated adjacent said conductor to control and regulate said flux.

More specifically the invention comprises a ring of magnetic material to which a wire from the radio set is connected. Around this ring is wound a coil connected to a battery to supply current thereto. Adjacent the coil are disposed two or more permanent magnets to control the flux. Wrapped around the magnet is an auxiliary winding which is closed on itself and carries no current.

In the preferred form of the invention shown in the drawings I provide a ring of magnetic material preferably iron around which a coil 11 is wound. This coil is connected by wires 12 and 13 to a battery 14, in circuit with which is a lamp 15 and a switch 16. The ring is broken at one point and filled in by a plate 17, preferably of brass, to which a wire 18 is connected, this wire leading to the antenna post "A" of a radio receiving set 19 grounded at 20.

As shown particularly in Figure 2 the ring magnet is also provided with a second or

auxiliary winding, which, however, in this case is not wrapped completely around the magnet itself but is wrapped around the outline of the magnet and is closed on itself and carries no current, that is to say, such as might be supplied by a battery 14. In other words the lateral portions of the coil 22 do not extend across the inner periphery of the ring.

Adjacent the plane of the magnetic ring and its coils are disposed two permanent magnets of the horseshoe type 23 and 24 disposed on opposite sides of the ring with their like poles opposite each other; that is to say, the north poles 25 and 26 are disposed opposite each other and the south poles 27 and 28 likewise. This coil and the magnets may be surrounded by an insulating casing 29, preferably of glass.

The coil and the windings are supported on a link 30 having an eye 31 which can be attached to any suitable point. The lower part of the casing is provided with a stem 32 through which the wires from the coils are conducted. When the switch 16 is closed, the current flows from the battery through the winding 11, this wire thus forming the flux and the field of flux, which extends parallel to the axis of the ring. This electromagnetic flux in combination with the permanent flux produced by the horseshoe magnets produces a regulated magnetic field which is affected by the reception of radio waves which are conducted through wire 18 of the radio receiving set. The object of sending current through the coil 11 is to magnetize the ring. This magnetized ring being connected to the radio set through the wire 18 acts as a very sensitive antenna. If the wire 11 is insulated it is possible to send the current from the battery through the ring itself and connect the wire 11 to the radio set. The idea is that one of these elements will carry current because the other one has become a magnet. The horseshoe magnets 23 and 24 act to control and stabilize and saturate the antenna with magnetism through which the incoming signal is induced and strained to help eliminate static, also 23 and 24 are placed like poles opposite with a concentration of force in ring 10 to force the incoming signals through the wire 18 to receiver 19 and thus prevent fading.

What I claim is:

1. A radio antenna which comprises a ring magnet connected to a radio set, a current

- carrying winding wrapped around said ring, a second winding completely enclosing said ring, the lateral portions of the second winding extending in planes coincident with the lateral plane of the ring and a pair of permanent magnets disposed on opposite sides of the ring with their like poles opposed and directed in a plane at right angles to the plane of the ring.
- 10 2. In combination, a metallic split ring, a plate filling said split, the plate being connected to a radio set, a current carrying winding wrapped spirally around the ring and a second winding wrapped around the outline area of the ring to completely enclose the same and magnets disposed on opposite sides of the ring. 15
3. In combination, a metallic split ring, a plate filling said split, the plate being connected to a radio set, a current carrying winding wrapped spirally around the ring and a second winding wrapped around the outline area of the ring to completely enclose the same and magnets disposed on opposite sides of the ring with their poles opposed and directed in a plane at right angles to the plane of the ring. 20 25

GEORGE WILLIAM COOPER.