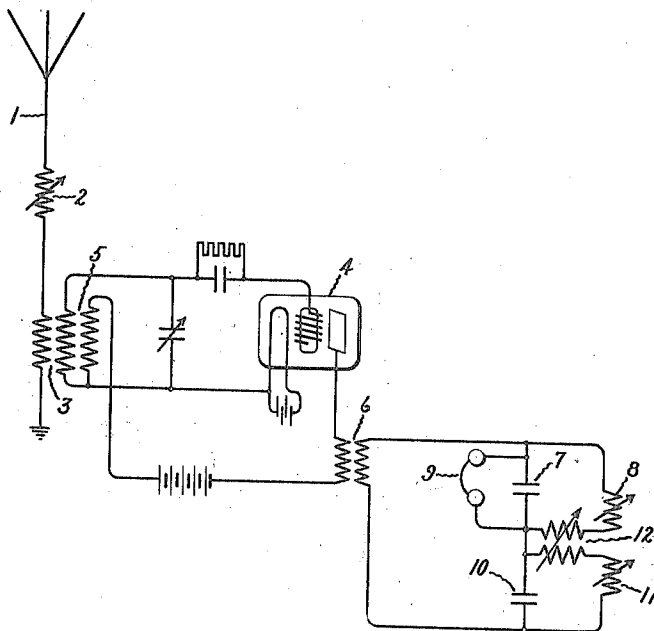


Jan. 23, 1923.

B. BRADBURY,
RADIO RECEIVING SYSTEM.
FILED SEPT. 15, 1920.

1,443,209



Inventor:
Burke Bradbury,
by *Alvin G. Davis*
His Attorney.

Patented Jan. 23, 1923.

1,443,209

UNITED STATES PATENT OFFICE.

BURKE BRADBURY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

RADIO RECEIVING SYSTEM.

Application filed September 15, 1920. Serial No. 410,529.

To all whom it may concern:

Be it known that I, BURKE BRADBURY, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Radio Receiving Systems, of which the following is a specification.

The present invention relates to radio receiving systems, particularly to systems for receiving continuous wave signals.

In some cases where it is desired to receive continuous wave signals by some method, such for example as the heterodyne method, for rendering such signals audible, it will be found difficult to tune a receiving system sharply enough to eliminate the effects in the receiver of stations of neighboring wave length which are either of higher power or located much nearer a receiving station than the one from which signals are to be received.

The object of my invention is to overcome such difficulties as the one mentioned and to provide a means for eliminating the effect in the receiver of interfering signals. The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation will best be understood by reference to the following description taken in connection with the accompanying drawing in which I have illustrated diagrammatically one way in which my invention may be carried into effect.

I have indicated in the drawing an antenna 1 with the usual tuning inductance 2 and a coupling transformer 3 by means of which the received signals are impressed upon the grid circuit of a detector 4 of the electron discharge type. The plate and grid circuits of the detector are coupled together at 5 in order that the detector may generate local oscillations of a frequency slightly different from that of the signals which are to be received. Coupled to the plate circuit of the detector 4 by means of the transformer 6 is a separate circuit in which are provided two frequency traps. One of these which comprises the capacity 7 and parallel inductance 8 is tuned for the frequency of the signals to be received, the usual telephone receiver 9, or any other desired form

of indicator, being connected in parallel to this trap. The second trap made up of the condenser 10 and parallel inductance 11 is tuned to the frequency of the interfering signals which it is desired to suppress. This second trap offers a high impedance in the circuit to the flow of currents of the interfering frequency and thereby prevents such currents from affecting the telephone receivers 9. In case the second frequency trap does not completely prevent the interfering signals from affecting the telephone receivers a coupling 12 may be provided between the two frequency traps for the purpose of impressing upon the first frequency trap a current of the proper phase and intensity to neutralize any current of the undesired frequency which may flow in the first trap.

I have found that it is possible by the system indicated to eliminate the effect upon the receivers of signals produced from nearby stations of high power and of wave length differing only slightly from that of signals which are to be received from a distant station.

While I have indicated and described only a single way of carrying my invention into effect, it will be obvious to those skilled in the art that many modifications in the type of apparatus employed as well as in the circuit connections used may be made without departing from the scope of my invention as set forth in the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination in a signal receiving system of a detector, a circuit upon which currents of audio frequency produced by said detector may be impressed, a frequency trap in said circuit which is resonant to the frequency of the signals to be received, and a second frequency trap in said circuit which is resonant to the frequency of interfering signals which it is desired to suppress.

2. The combination in a signal receiving system of a detector, a circuit upon which currents of audio frequency produced by said detector may be impressed, a frequency trap in said circuit which is resonant to the frequency of the signals to be received and a second frequency trap in said circuit which is resonant to the frequency of interfering signals which it is desired to suppress, and a coupling between said fre-

quency traps for neutralizing in the first trap currents set up therein of the undesired frequency.

3. In a system for receiving and detecting continuous wave signals, means for receiving continuous wave signals, means for producing currents of audio frequencies from the received signals, a circuit upon which the currents of audio frequencies are impressed, an indicator operatively related to said circuit in such a way as to be directly affected by currents of a desired frequency impressed upon said circuit, and means directly associated with said circuit for preventing currents of an undesired frequency impressed upon said circuit from affecting said indicator.

4. In a system for receiving and detecting continuous wave signals, means for receiving continuous wave signals, a detector, an indicator operatively related to said detector so as to be directly actuated by signaling currents of a desired frequency produced by said detector and means associated with said detector for preventing currents of an

undesired frequency produced by said detector from affecting said indicator.

5. The combination in a signal receiving system of a detector, a frequency trap associated with said detector which is resonant to the audio frequency of the signals to be received and a second frequency trap associated with said detector which is resonant to the audio frequency of interfering signals which it is desired to suppress.

6. The combination in a signal receiving system of a detector, a frequency trap associated with said detector which is resonant to the frequency of the signals to be received, a second frequency trap associated with said detector which is resonant to the frequency of interfering signals which it is desired to suppress, and a coupling between said frequency traps including means for neutralizing in the first trap currents set up therein of the undesired frequency.

In witness whereof, I have hereunto set my hand this 14th day of September 1920.

BURKE BRADBURY.