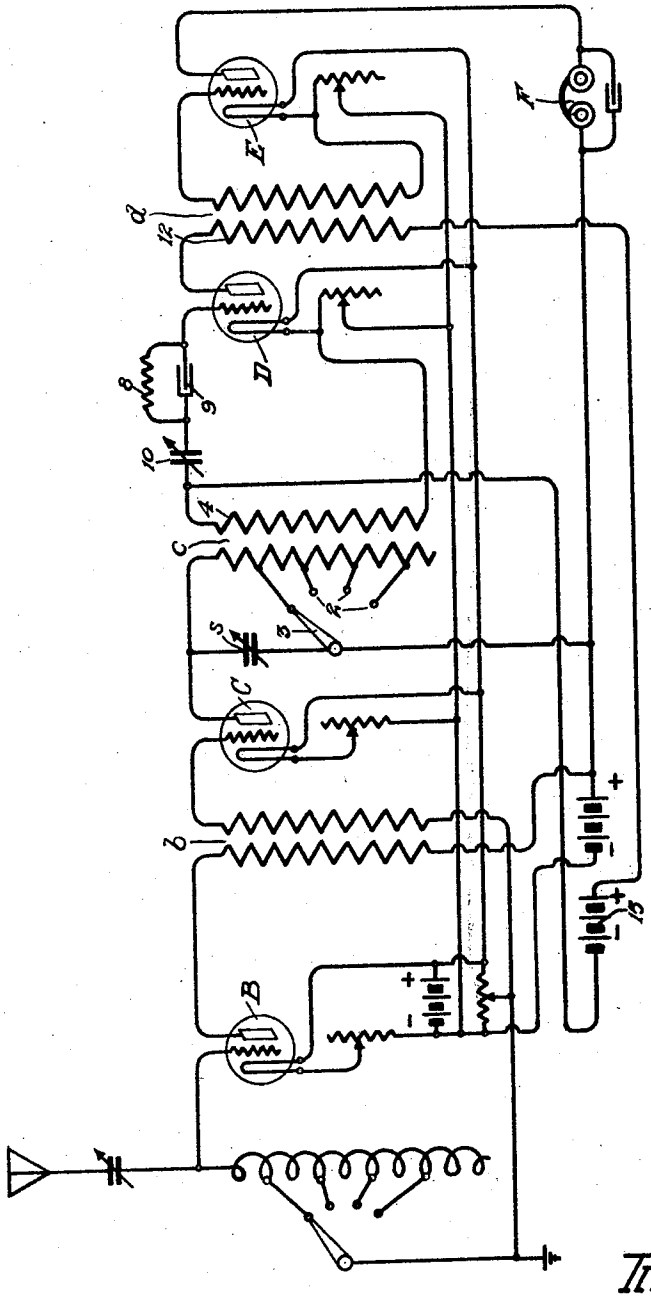
April 26, 1927.

1,626,239

L. D. KELLOGG

RECEIVING CIRCUIT

Filed Oct. 6, 1922



Inventor:
LeroyD.Kellogg
By Curtis C. Crump
Attorney

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UNITED STATES PATENT OFFICE.

LEROY D. KELLOGG, OF DEERFIELD, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

RECEIVING CIRCUIT.

Application filed October 6, 1922. Serial No. 592,681.

My invention relates to wireless telephony and has to do, in the form in which I have elected to show and describe it, more particularly with receiving circuits for such systems, its object being to produce by certain circuit arrangements sharpness and clearness of signals while maintaining satisfactory volume unimpaired.

In the accompanying drawing, I have shown my invention in association with a conventionally diagrammed system of well-known character, involving at B and C radio frequency amplification; at D the elements more particularly involved in the present invention are shown organized in a preferred manner, while at E one additional stage of amplification is provided.

Referring more particularly to the apparatus at D, the incoming oscillations, after being amplified by the agencies of the tubes B and C and transformer *b*, are received upon the primary 1 of the vario-coupler *c*, the usual taps 2, switch lever 3 and variable condensers *s* being provided and connected up for tuning purposes, all in the well-known manner.

The incoming oscillations are translated to the secondary 4 of the vario-coupler and at tube D the plate circuit is connected back through the primary 12 of transformer *d* and the plate battery 15 to a point between the secondary winding of the tuned receiving device *c* and the usual grid condenser 9, the latter provided with the usual grid leak 8. At this point the oscillations in the plate circuit divide, a portion returning to the filament via winding 4, while the energy of the remaining part is impressed upon the audion circuits via the variable condenser 10 and grid condenser 9, resulting in an appreciable benefit in the sharpness with which the incoming signals are reproduced at the transformer *d*, where they are translated to the tube E and amplified a last time for the audible receiving device F.

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

1. A receiving circuit for high frequency oscillations including a translating device, a receiving tube with filament, grid and plate, said translating device having one terminal connected to filament and the other to grid, a conductor connecting the plate to a point between the grid and that terminal of the translating device connected thereto, said plate connected to said filament, through said terminals in series, and a battery, the said conductor connecting said plate to the point between the grid and that terminal of the translating device connected thereto including between the plate and the said point of connection to said grid circuit, a winding of a translating device and said battery in series.

2. A receiving circuit for high frequency oscillations including a tuned circuit upon which the oscillations are impressed, a tube with filament, grid and plate, said filament connected to one terminal of said circuit and said grid connected to another terminal thereof, and a conductor leading from the plate and connected to the conductor leading from said grid to said other terminal and operatively connected to said filament only through the terminals of said circuit in series, said conductor including between the point that it is connected to said plate and to the grid circuit a translating winding and a source of potential.

3. In a radio circuit, the combination with a tube provided with filament, grid and plate, of a coil, a circuit for said coil having one terminal to grid and the other to filament, a plate battery having its positive terminal to plate and its negative terminal conductively connected between said one terminal of said coil and said grid, and a single path for current from said negative battery terminal through said coil terminals to said filament.

4. In a radio circuit, the combination with a tube provided with filament and plate, of a receiving device having a winding and one terminal thereof connected to filament, a plate battery and a conductive path for current from said battery including said plate, said filament and said winding of said translating device upon which the received oscillations are received for transmission to said tube, said conductive path being the only path from said plate to said filament and extending directly from said plate through a translating device and said plate battery to the grid circuit.

Signed by me at Chicago, in the county of Cook, and State of Illinois, this 4th day of October, 1922.

LEROY D. KELLOGG.