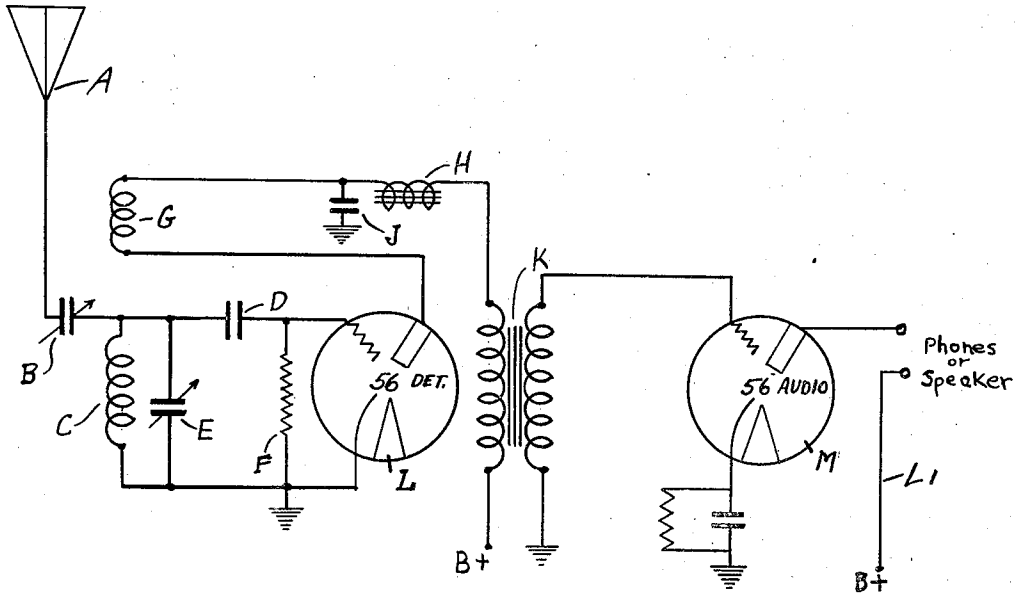
Feb. 4, 1941. J. R. McALLISTER 2,230,465

RADIO RECEIVER

Filed Sept. 29, 1939



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Patented Feb. 4, 1941

2,230,465

UNITED STATES PATENT OFFICE

2,230,465

RADIO RECEIVER

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Application September 29, 1939, Serial No. 297,117

4 Claims. (Cl. 250—20)

This invention relates to a radio receiver.

The principal object of this invention is the provision of a modified regenerator receiver circuit. A further object of the invention is the provision of a modified regenerative receiver circuit having the general characteristics of a superregenerative receiver circuit.

A further object of the invention is the provision of a regenerative receiver circuit modified to form a self quenching oscillator.

A still further object of the invention is the provision of a simplified superregenerative detector circuit wherein the use of high plate voltages together with lower resistances in the grid circuit result in establishing an oscillator circuit wherein the oscillation is self quenching at such times as a signal is being received.

A still further object of the invention is the provision of a simplified superregenerative detector circuit which will operate a loud speaker efficiently on signals from 10 meters and up, and which will tune overseas stations at 19–25 meters.

A still further object of the invention is the provision of a simplified superregenerative detector circuit having the ability to suppress various types of interference such as automobile ignition, lightning, etc.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the circuit herein disclosed and claimed and in the characteristics of the said circuit, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing wherein a symbolic diagram of the simplified superregenerative circuit is shown.

By referring to the accompanying drawing it will be seen that an oscillator has been formed from a simple regenerator circuit and comprises an antenna A coupled through a variable or trimmer condenser B to a grid coil C having inductance value of approximately two microhenrys, leads from the grid coil C establish connections to a triode detector tube L which can be a '56, 227 or a '75. The triode detector L is supplied with 150 to 300 volts on the plate L1 thereof which tends to increase the oscillation. An increase in voltage on the plate results in a louder signal being received.

By referring again to the drawing it will be seen that a fixed condenser D with a capacity of .0001 mfd. is placed in the lead connecting the grid coil C and grid L2 of the detector, and that a tuning condenser E is positioned between the leads from the grid coil C to the detector tube L. A grid leak F of ¼ megohm capacity is also positioned between the leads from the grid coil C to the detector tube L and the same is grounded as indicated.

Still referring to the drawing it will be seen that a regenerative or plate coil G having an inductance value of .25 microhenrys is provided and connected to the plate L1 of the detector and to a radio frequency choke H having an inductance value of approximately 2½ henrys and that the lead between the plate coil G and the radio frequency choke H is by-passed to the ground through a fixed condenser J preferably of .0005 mfd. capacity. It has been determined that the capacity of this fixed condenser J may vary from .01 to .0005 with varying results, the latter capacity being preferred. It is this by-pass to the ground by way of the fixed condenser J that enables the circuit to function as a powerful superregenerator receiver with self quenching oscillation at such times as a signal is being received. A lead from the radio frequency choke H connects to the primary of an audio frequency transformer K, the other end of the primary being connected to the B+ source where preferably 150 to 350 volts are supplied. The secondary of this audio frequency transformer K is connected to the grid of a '56 audio tube while the opposite end of the secondary is grounded. A connection from the plate of the '56 audio frequency tube establishes one side of the phone or speaker circuit, the other side, as indicated by the reference character N, is connected to the B+ power source as indicated in the drawing. This completes a simple workable superregenerative circuit, the essential characteristics of which are the same as any other circuit known to the art wherein regeneration sends greater energy into the grid circuit of the detector tube which directly increases the detection ability of the circuit. As is well known, the superregenerative circuits heretofore known have been difficult to control as well as critical in their adjustments. These characteristics are not present in the circuit herein disclosed as it is possible to control the receiver fairly accurately and adjustments may readily be made. It will be seen that the circuit does not provide any quenching means as the oscillation is automatically quenched when a signal is received. The receiver circuit herein disclosed operates a loud speaker satisfactorily.

The given inductance values of the coils G, H

and C are not critical to the operation of the system as it has been determined that the same may be varied somewhat without affecting the receptive qualities of the receiver.

Having thus set forth a clear and exact statement of the construction and operation and utility of my invention, what I claim is:

1. A radio receiving system comprising a thermionic tube having grid, cathode and anode electrodes, a circuit effectively connected to said thermionic tube for generating and detecting oscillatory currents of high frequency, means for tuning said circuit over a range of high frequencies, means enabling the said circuit to utilize the detected or incoming oscillatory currents as quenching oscillations at such times as the same are being received, said means comprising the grounding of the said circuit at a point on the connection between a plate coil and a choke coil thereof through a fixed condenser of suitable capacity.

2. A radio receiving system comprising a thermionic tube having grid, cathode and anode electrodes, a circuit effectively connected to said thermionic tube for generating and detecting oscillatory currents of high frequency, the said circuit comprising a variable condenser coupled to a grid coil, the said grid coil connected to the said thermionic tube, a plate coil connected to the said thermionic tube and to an audio transformer, means for tuning said circuit over a range of high frequencies, means enabling the said circuit to utilize the detected or incoming signal frequency currents as quenching oscillations at such times as the same are impressed upon the said detector, said means comprising the grounding of the said circuit at a point on the connection between a plate coil and a choke coil thereof through a fixed condenser of suitable capacity.

3. A radio receiving system comprising a detector tube, a circuit including a trimmer condenser coupled to a grid coil connected to the said detector, a plate coil connected to the said detector and to an audio frequency transformer through a choke coil, means enabling the said circuit to utilize detected oscillatory currents as quenching oscillations when the same are received, said means comprising the grounding of the said circuit at a point on the connection between the plate coil and the choke coil thereof through a fixed condenser of suitable capacity.

4. In a radio receiving system comprising an oscillating detector having a single variable element for tuning over a range of frequencies, a circuit effectively connected to the said oscillating detector for generating said oscillatory currents, means for enabling said circuit to utilize detected oscillatory currents as quenching frequencies at such times as signal frequency currents are impressed upon the said detector, said means comprising the grounding of the said circuit between plate and choke coils thereof through a suitable condenser.

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