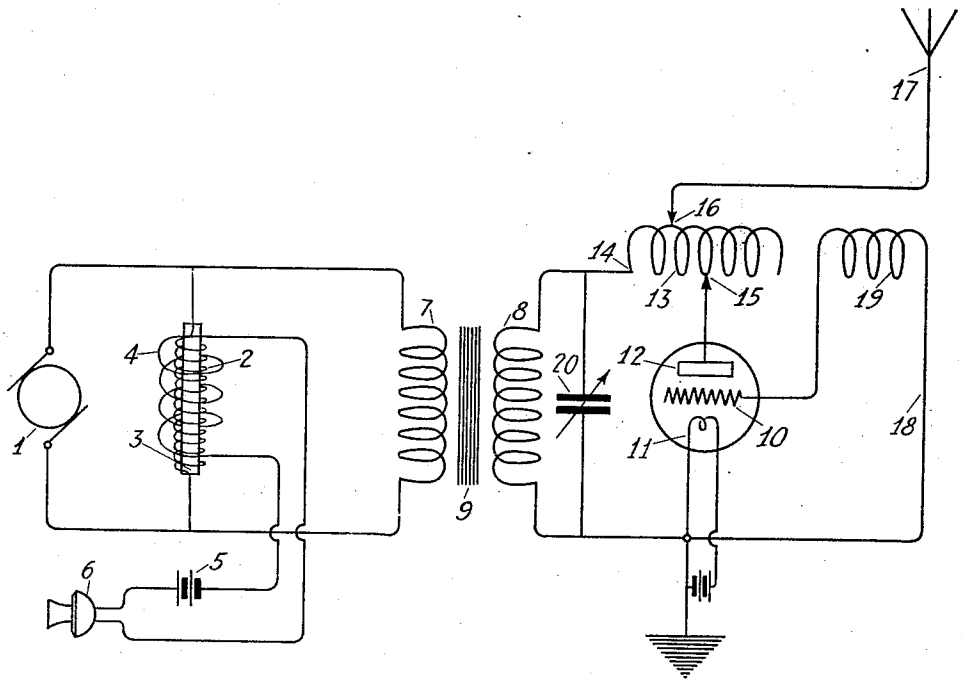
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RADIOTELEPHONE TRANSMITTING SYSTEM

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RADIOTELEPHONE TRANSMITTING SYSTEM.

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The present invention relates to improvements in radio telephone transmitting systems preferably using oscillators of the vacuum tube type.

The principal object of my invention is to simplify the circuits of systems of this type and particularly to decrease the number of vacuum tubes required with the result that the maintenance cost is decreased and the operation is simplified.

A further object of my invention is to secure in addition a high plate voltage for the oscillator tubes without the use of special high voltage direct current generators or batteries for this purpose.

The novel features which I believe to be characteristic of my invention are particularly set forth in the appended claims. The invention itself, however, both as to its construction and mode of operation, together with further objects and advantages thereof will best be understood by reference to the following description taken in connection with the accompanying drawing in which the single figure diagrammatically illustrates an embodiment of my invention.

My invention utilizes, among other things, an alternator generating a frequency which is somewhat higher than the upper range of normal speech frequencies (200 to 2200 cycles) and considerably lower than the radio frequency which is used in transmitting, and preferably lower than the radio frequency now generally used for long distance transmission. An alternator utilized in accordance with my invention as hereinafter described has a frequency considerably above the upper limit of the normal speech frequencies. On account of the difficulty of generating frequencies of a higher order the preferred frequency is between 4,000 and 10,000 cycles and 5,000 cycles is an especially suitable frequency.

Referring to the drawings:

The terminals of an alternator 1 of the frequency set forth are connected by means of a winding 2 wound around an iron core 3. A second winding 4 is also wound around the iron core and connected through a battery 5 to a microphone 6. When speech is directed into the microphone the direct current through the winding 4 will be modulated at speech frequencies in a well known manner. The iron core 3 and windings 2, 4 constitute a ferromagnetic modulating device adapted to modulate the output of the alternator in accordance with the speech frequency by varying the impedance of the shunt circuit.

The output circuit of the alternator is coupled by means of a transformer winding 7 with the winding 8 of the step up transformer 9 by means of which the desired high plate voltage is secured. The single oscillator or set of oscillators 10 utilized in this arrangement is supplied with energy modulated at speech frequencies from the alternator 1 through the winding 8 of the transformer. In the arrangement the winding 8 is shunted by a condenser 20 and connected at one end to the grounded filament 11 and at the other end to the plate 12 through the inductance of auto-transformer 13 between points 14 and 15. The antenna circuit comprises the inductance of auto transformer 13 between the points 14 and 16 where the antenna 17 is connected and condenser 20 to ground. The grid 10 of the valve is coupled to the output circuit of the oscillator by means of coil 19 in order to set the valve into oscillation. The condenser 20 shunted across the coil 8 by-passes radio frequency oscillations around the transformer secondary. The frequency of the oscillations is determined by the adjustment of condenser 20 and inductance 13.

By means of the arrangement described I am able to provide a high plate voltage for the oscillator which contributes to high efficiency and high output without the necessity of using costly high voltage batteries or alternating current generators and high voltage rectifier tubes. I have also found that the output of the generator of the frequency set forth can be directly modulated in an effective manner, for example, in the manner described, by speech frequencies without the use of separate modulator tubes. By thus utilizing a single alternator and eliminating high voltage direct current generators or batteries, rectifier and modulator tubes, the circuits are greatly simplified and the cost of maintenance is decreased, especially due to the fact that only one set of tubes is necessary. As the frequency of the alternator is above the speech frequency and below the radio frequency, the superposition of the intermediate frequency on the speech and radio frequencies cannot interfere with the transmission or reception of the speech.

Having described my invention, what I claim is:

1. In a radio transmitting system, the combination with a vacuum tube oscillator of means for supplying alternating current having a frequency above the limit of normal speech frequency to the plate-filament circuit thereof, and means in shunt with said supplying means for modulating the output thereof at audible frequencies.

2. In a radio transmitting system, the combination with a vacuum tube oscillator of means for supplying alternating current having a frequency above the limit of normal speech frequency to the plate-filament circuit thereof, and a magnetic modulator shunted around said supplying means.

3. In a radio transmitting system, the combination with a vacuum tube oscillator, of means for supplying alternating current having a frequency of substantially 5,000 cycles per second to the plate-filament circuit thereof, and a magnetic modulator in shunt with said supplying means.

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