

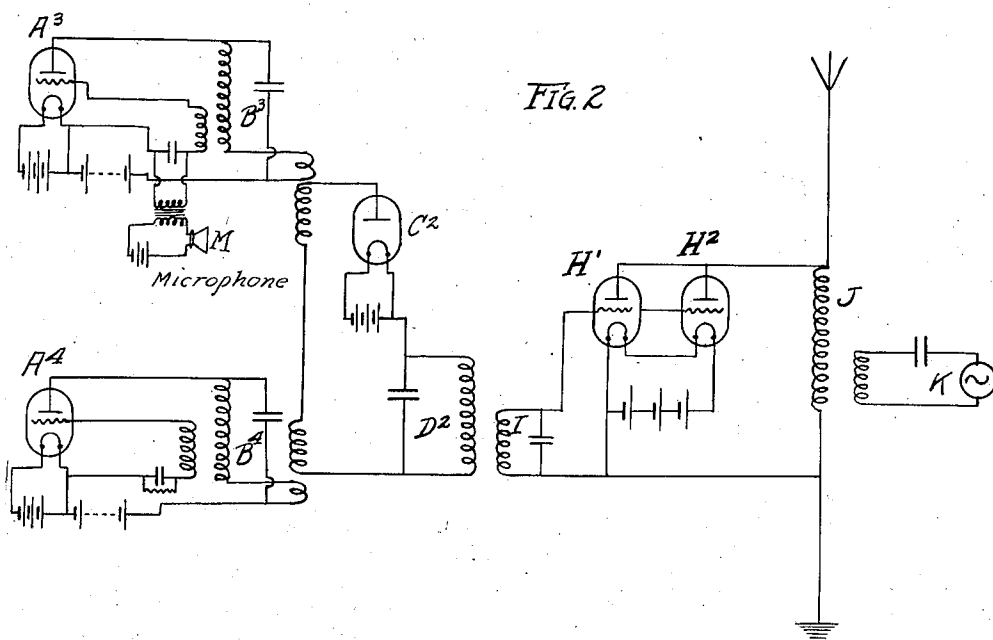
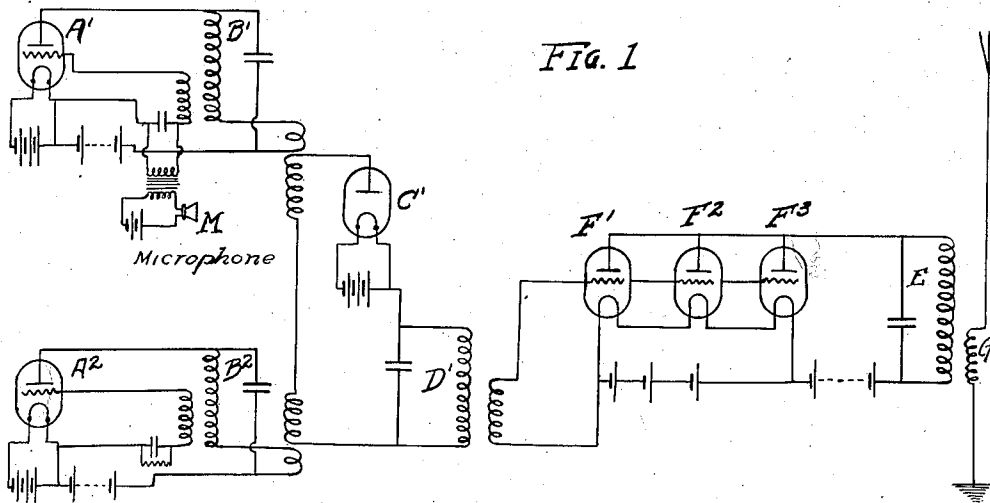
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WIRELESS TELEPHONY

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WIRELESS TELEPHONY.

Application filed December 18, 1920, Serial No. 431,584, and in Great Britain February 28, 1920.

This invention relates to improvements in wireless telephony, and its object is to provide a transmitter in which small changes of condition set up by the voice in one part of the system will produce in another part much greater changes which may be utilized to transmit the speech in an effective manner.

According to this invention means are provided whereby the waves of speech may vary the frequency of the oscillations in one of two primary oscillatory circuits which are tuned to different frequencies and fed with continuous oscillations preferably from thermionic generators, and means are provided for rectifying the oscillations in a secondary oscillation circuit tuned to a frequency equal to the difference between the frequencies of the primary circuits and so arranged that the beat frequency oscillations resulting from the rectification induce currents in the secondary circuit which may be coupled either directly or through an amplifier to an aerial, or to the grid of a thermionic valve controlling the radiation from a continuous wave transmitter.

Since the beat frequency is less than either of the primary frequencies a variation in one of the primary frequencies results in a greater proportional variation in the beat frequency.

The variation in frequency may be caused in the case of valve oscillators by imposing a voice produced voltage variation on the grid of the oscillating valve in a known manner, or a condenser forming part of the valve oscillating circuit and capable of being varied in capacity by the speech waves may be employed; or any other suitable method may be used.

In some cases the speech may be caused to vary the frequencies of both the primary circuits in opposite senses.

The secondary circuit may be tuned to a frequency equal to the difference of the frequencies of the primary circuits or to a slightly different frequency preferably such that the maximum variation possible in the primary frequencies in one sense will produce a beat which just reaches resonance with this frequency.

The accompanying drawing shows by way of example diagrams of the invention employed as a wireless telephone transmitter in Figure 1 and as a subcontrol modulator in a wireless telephone transmitter in Figure 2.

A^1 , A^2 , A^3 , A^4 , and B^1 , B^2 , B^3 , B^4 , represent valves and circuits generating oscillations of frequency n^1 , n^2 , n^3 , n^4 .

C^1 and C^2 represent rectifiers in connection with circuits D^1 and D^2 tuned to a frequency of $n^1 - n^2$ and $n^3 - n^4$ respectively.

E and F^1 , F^2 , F^3 , represent a circuit and valves magnifying the frequency $n^1 - n^2$ and G is an aerial circuit tuned to a frequency $n^1 - n^2$.

H^1 and H^2 are absorbing valves for modulating the oscillations in J in the grid circuit of which is a circuit I tuned or nearly tuned to the frequency $n^3 - n^4$.

K is the source of high frequency exciting J .

M is a microphone by which the frequency n^1 or n^3 can be modulated.

Having now particularly described the nature of my invention and in what manner the same is to be performed I declare that what I claim is:—

1. In a wireless telephone transmitter, the combination of two primary oscillatory circuits tuned to different frequencies, means for supplying continuous oscillations thereto, means whereby speech waves can vary the frequency of the oscillations in one of the circuits, and an oscillatory rectifying circuit tuned to a frequency substantially equal to the difference between the frequencies of the primary circuits and coupled to an aerial.

2. In a wireless telephone transmitter, the combination of two primary oscillatory circuits tuned to different frequencies, means for supplying continuous oscillations thereto, means whereby speech waves can vary the frequency of the oscillations in one of the circuits, and an oscillatory rectifying circuit tuned to a frequency substantially equal to the difference between the frequencies of the primary circuits and coupled to an aerial through an amplifier.

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