

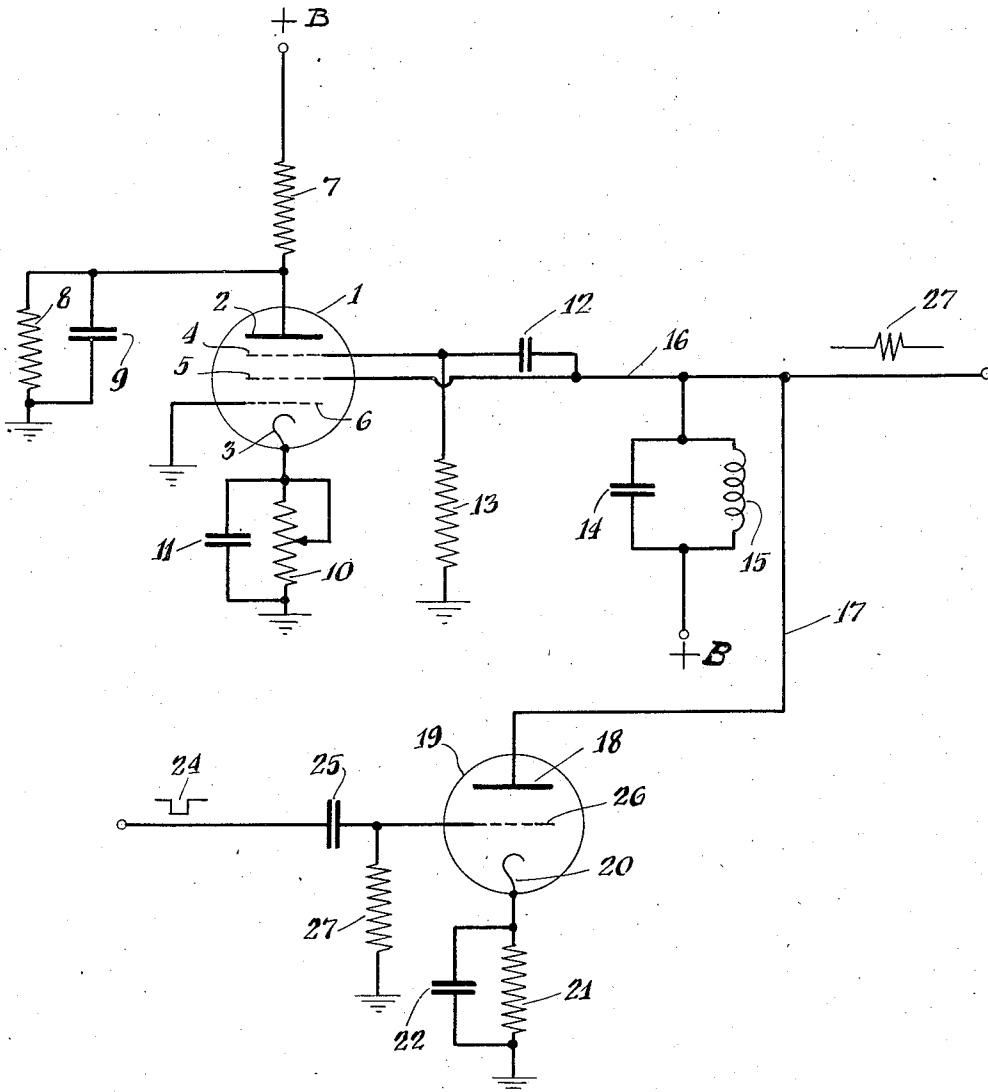
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KEYED OSCILLATOR

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KEYED OSCILLATOR

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This invention relates to a vacuum tube oscillator by which trains or bursts of oscillations, either sinusoidal or of other shapes, can be suddenly initiated and caused to continue for predetermined intervals of time and then be suddenly stopped. With this invention the initiation of the oscillations and the stopping of the same is under the control of another vacuum tube and may be done by means of a pulse of electrical energy that may be termed "keying pulse."

The invention may be understood from the description in connection with the accompanying drawing, which is a diagram of connections showing an illustrative embodiment of the invention.

In the drawing, reference character 1 indicates the vacuum tube of a transitron oscillator which is provided with a plate 2, cathode 3, and three grids 4, 5 and 6, the grid 6 being grounded.

A resistor 7 is provided between a source of positive potential B and the plate 2. A resistor 8 is provided between the plate 2 and ground with a condenser 9 in parallel with the resistor 8. A variable resistor 10 is provided between the cathode 3 and ground with a condenser 11 in parallel with it. A condenser 12 is connected between the grids 4 and 5 and a resistor 13 is located between grid 4 and ground.

A condenser 14 and inductor 15 in parallel between a source B of positive potential and the grid 5 constitutes the tank circuit of this grid and controls the frequency of oscillations of the tube 1 in the known way.

The output lead from the oscillator 1 is indicated by 16. A lead 17 is connected from the lead 16 to the plate 18 of the triode 19 which is the keying tube for the device. It has its cathode 20 biased by resistor 21 with which the condenser 22 is in parallel.

The keying pulse 24 is coupled by condenser 25 to the control grid 26 of the tube 19. This grid 26 is connected to ground through resistor 27.

The operation is as follows:

The pentode 1 is connected as shown as a transitron oscillator. It has been found, for example, that the device operates very satisfactorily when the resistor 10 is adjusted to be about 300 ohms and the potential B+ is about 85 volts. A wide range of frequencies of oscillation of the oscillator 1 can be obtained by changing the condenser 14 or inductance 15. It has been found that frequencies up to about one megacycle or more per second are very satisfactory for the purposes of this invention.

The oscillator 1 does not oscillate normally be-

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cause of the low alternating current plate to cathode resistance of tube 19, which is effectively across the tank coil 15. The resistor 21 prevents excessive current through tube 19.

However, when a negative pulse as indicated at 24 is applied to the control grid 26 of tube 19, this tube ceases to conduct, thus causing its plate to cathode impedance to become very high, whereupon the oscillator 1 begins to oscillate instantly at the frequency determined by the grid tank circuit 14, 15 and continues to oscillate during the time interval of the negative pulse 24 and then immediately ceases to oscillate as shown by the burst 27 of high frequency oscillations.

It will be obvious from the description that with this invention a vacuum tube oscillator can be keyed in such a manner that it will oscillate for predetermined periods of time so that trains or bursts of oscillation, whether of sinusoidal or other forms, can be suddenly initiated, prolonged for different intervals of time, and immediately extinguished merely by applying the appropriate signals to the grid of tube 19.

What is claimed is:

1. A device for producing bursts of electrical oscillations, which comprises a pentode that has its control grid grounded and its cathode connected to ground through a resistor, a condenser and inductance in parallel connected between a source of positive potential and the screen grid of said pentode, a resistor between the suppressor grid of said pentode and ground and a condenser between the screen grid and suppressor grid of said pentode to cause said pentode to oscillate when positive potential is applied to its plate, a triode adapted to be blocked when a pulse of negative potential is applied to its control grid, the plate of said triode being connected directly to said screen grid and its cathode connected to ground through a resistor.

2. A device for producing bursts of electrical oscillations, which comprises a pentode that has its control grid grounded and its cathode connected to ground through a resistor, a condenser and inductance in parallel connected between a source of positive potential and the screen grid of said pentode, a resistor between the suppressor grid of said pentode and ground and a condenser between the screen grid and suppressor grid of said pentode to cause said pentode to oscillate when positive potential is applied to its plate, a triode adapted to be blocked when a pulse of negative potential is applied to its control grid, the plate of said triode being connected directly to said screen grid, and separate resistors con-

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necting the cathodes of said pentode and triode respectively to ground.

3. A device for producing bursts of electrical oscillations, which comprises a pentode that has its control grid grounded and its cathode connected to ground through a resistor, a condenser and inductance in parallel connected between a source of positive potential and the screen grid of said pentode, a resistor between the suppressor grid of said pentode and ground and a condenser between the screen grid and suppressor grid of said pentode to cause said pentode to oscillate when positive potential is applied to its plate, a triode adapted to be blocked when a pulse of negative potential is applied to its control grid, the plate of said triode being connected directly to said screen grid, and separate resistors connecting the cathodes of said pentode and triode respectively to ground and a condenser in parallel with each resistor.

4. A device for producing bursts of electrical oscillations, which comprises a pentode that has its control grid grounded and its cathode connected to ground through a resistor, a condenser and inductance in parallel connected between a source of positive potential and the screen grid of said pentode, a resistor between the suppressor grid of said pentode and ground and a condenser

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between the screen grid and suppressor grid of said pentode to cause said pentode to oscillate when positive potential is applied to its plate, a triode adapted to be blocked when a pulse of negative potential is applied to its control grid, the plate of said triode being connected directly to said screen grid, a variable resistor between the cathode of said pentode and ground and a resistor between the cathode of said triode and ground.

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