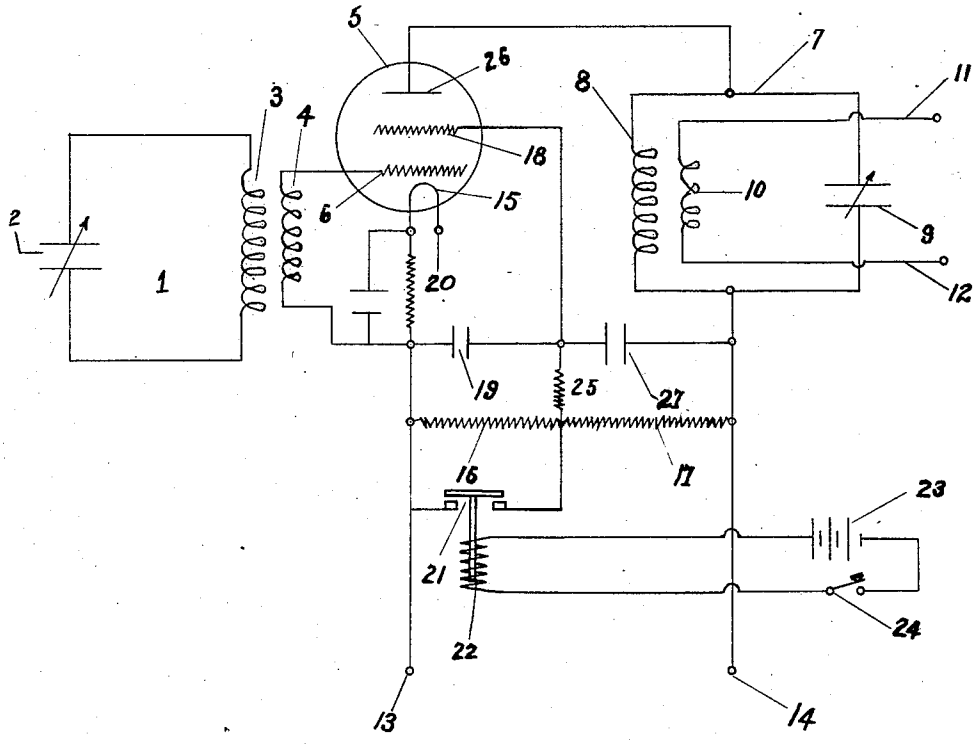
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RADIO TELEGRAPH CIRCUIT

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RADIO TELEGRAPH CIRCUIT

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The objects of my invention are to provide a new method of keying a radio transmitting mechanism for the sending of telegraphic signals, in which the power output is reduced substantially to zero excepting when the sending key is closed, and in which, while the power at the actual key-controlled break is reduced to a very low amount, the power consumed during the non-signalling period is exceedingly small.

I accomplish these and other objects which may be pointed out hereinafter or will be apparent to one skilled in the art upon reading these specifications, by that circuit and arrangement of parts of which I shall now describe a preferred embodiment, shown in diagram in the drawings.

The numeral 1 indicates the tuned circuit of an oscillator or a preceding amplifier, and is shown as containing a variable condenser 2 and an inductance 3. 4 is a coupling coil to provide radio frequency excitation to the amplifier tube 5, and one terminal is connected to the grid 6. The plate of the tube, indicated at 26, is provided with a resonant circuit 7 for tuning, which comprises the inductance 8 and the variable condenser 9. The coupling coil 10, coupled with the inductance 8 supplies power to the antenna, or may be used for driving a succeeding amplifier, through the leads 11 and 12.

The leads of a high-voltage source of plate potential are indicated at 13 and 14, the first of which is connected with the filament 15, and the grid 6 through the inductance 4, the second of which is connected with the plate 26 through the resonant circuit 7. A potentiometer having parts 16 and 17 is shunted across the leads 13 and 14. The central terminal, or variable contact of this potentiometer is connected with the screen grid 18. Condensers 19 and 20 shunt the resistance portions 16 and 17. The contacts 21 of a relay having a solenoid 32 shunt the resistance portion 16, and are so arranged as to be normally closed except when opened by the excitation of the solenoid; and the solenoid is arranged to be excited by a current source 23 controlled by the telegraphic key 24. The ratio of the two resistance portions 16 and 17 is adjusted to provide the proper D. C. potential on the screen grid.

It will now be seen how the key 24 controls the output of the circuit having the leads 11 and 12. When the key is opened, i. e., in the non-signalling position, the relay contacts 21 short circuit the resistance portion 16 of the potentiometer, reducing the screen grid voltage to zero. The power output of the circuit will thus be substantially zero, and the power input slight. When, however, the key is closed, the solenoid 22 opens the circuit between the relay contacts, and the action of the resistance portion 16 of the potentiometer is to raise the screen grid potential to its proper value. The power output of the circuit thereupon raises to its full value, and a signal is sent. The condenser 19 produces a slight lag in the increasing of the screen grid potential and power output, and upon the reopening of the key the condenser 19 causes the potential to die out rather than to be cut off sharply. It will be understood that condensers have some series resistance which makes this possible. However, to make the potential die out more gradually, I may, if desired, use an additional resistance 25 connected between the juncture of the resistance portions 16 and 17 of the potentiometer and the juncture of the leads from condensers 19 and 20. By adjusting the condenser 19 and the resistance 25 the rate of decay of the potential on the screen grid may be more closely controlled. The resistance 25 may have any desired value from 0 up. Thus by adjusting the condenser 19 and/or the resistance 25 any desired value of wave front may be obtained. In this way I am able to control key thumps. The wave train may be made to start and stop sharply

by making the condenser 19 small and the resistance 25 negligible, or to stop and start gradually by making both large.

Another advantage of my invention is that for any given speed of keying the dots and dashes will be longer, and their length may be regulated by controlling the length of movement of the relay armature. In the usual circuits the length of time consumed in the actual opening and closing of the contacts by the relay, is subtracted from the signal length as sent by the key, whereas in the circuit of my invention it is added. This considerably facilitates high speed telegraphy.

It will be clear that modifications in my invention may be made without departing from the spirit of it.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a radio signalling system, a transmitting circuit having a screen grid amplifier, a screen grid circuit, means inducing a screen grid potential, said means comprising a potentiometer bridging the power leads of the plate circuit, the screen grid lead being connected with the central terminal thereof, and key controlled means for short circuiting the portion of the potentiometer resistance element in series in the screen grid circuit whereby the screen grid potential may be reduced substantially to zero.

2. In a radio signalling system, a transmitting circuit having a screen grid amplifier, a screen grid circuit, means inducing a screen grid potential, said means comprising a potentiometer bridging the power leads of the plate circuit, the screen grid lead being connected with the central terminal thereof, and key controlled means for short circuiting the portion of the potentiometer resistance element in series in the screen grid circuit, whereby the screen grid potential may be reduced substantially to zero, and a radio-frequency by-pass condenser bridging the screen grid circuit whereby the potential changes are made gradual.

3. In a radio signalling system, a transmitting circuit having a screen grid amplifier, a screen grid circuit, means inducing a screen grid potential, said means comprising a potentiometer lead connected with the central terminal of said potentiometer through a supplementary resistance, and key controlled means for short circuiting the portion of said resistance element in series in said screen grid circuit whereby the screen grid potential may be reduced substantially to zero.

4. In a radio signalling system, a transmitting circuit having a screen grid amplifier, a screen grid circuit, means inducing a screen grid potential, said means comprising a potentiometer bridging the power leads of the plate circuit, the screen grid lead being connected with the central terminal thereof, and key controlled means for short circuiting the portion of the potentiometer resistance element in series in the screen grid circuit, whereby the screen grid potential may be reduced substantially to zero, and a radio-frequency by-pass condenser bridging the screen grid circuit whereby the potential changes are made gradual, and a resistance in the screen grid lead to the potentiometer terminal.

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