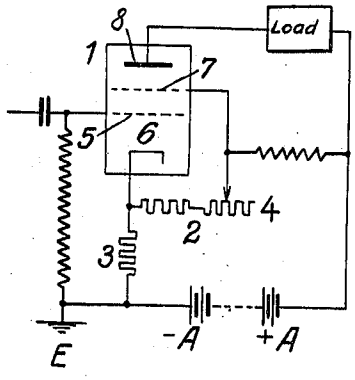
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HIGH FREQUENCY RECEIVER

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HIGH FREQUENCY RECEIVER

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3 Claims. (Cl. 179—171)

It is well known to adjust the amplification of high frequency receivers by varying the bias potentials of electrodes thereof. For instance, the grid bias of an amplifying stage is rendered adjustable by means of a potentiometer.

If in the customary manner the control grid voltage is produced with the aid of a resistance included in the cathode circuit then it is not practicable to adjust the amplification by varying the bias of the control grid by means of a potentiometer, because it is desirable to connect the oscillatory grid circuit and the negative control grid potential too with the casing.

If the amplification is adjusted by varying the screening grid bias, a decrease of this potential acts to diminish the anode current. In this case, by taking the control grid bias from a potentiometer located in the anode circuit the bias variation which the control grid undergoes on the anode current decreasing acts in opposition to the bias variation to which the screening grid is subjected, whereby the range of regulation is greatly diminished.

Also, when decreasing the negative grid bias the grid current range is attained. This is not desirable since the selectivity of the grid circuits is impaired thereby.

In order to avoid these disadvantages the invention proposes to adjust the amplification by means of a method in which the potentiometer current controlling the screening grid potential shall flow through the resistance employed for producing the control grid bias so that in the case of decreasing the screening grid potential the potentiometer current shall increase without the control grid bias becoming varied.

The accompanying drawing shows the circuit arrangement of one embodiment of the invention. In the drawing only the important D. C. paths and impedances are shown, the A. C. paths and impedances which may be inserted being of any known type.

The biasing potentials of an indirectly heated electronic tube 1, whose anode is denoted by 8, are taken from a potentiometer 2 that comprises different component resistances. Resistance 3 is traversed by the anode current and in addition by the potentiometer current. The control grid 5 of this tube is of the potential E of the casing while the cathode 6 is of positive potential with respect thereto. −A, +A designates the anode battery. If now by varying the priming or biasing resistance 4 the bias potential of screening grid 7 is altered in a manner to decrease the anode current, then at the same time the potentiometer current will increase, whereby the current flowing through resistance 3 will remain of constant intensity, the range of regulation thus not being limited. With constant control grid bias therefore the entire regulating range is available for adjusting the screening grid potential.

By properly dimensioning the potentiometer resistances it will be possible to increase the range of regulation, because any variation of the screening grid potential entails an increase of the drop of potential across resistance 3 and thereby causes the control grid bias to be varied in the opposite sense.

Similarly, the invention is applicable also to low frequency amplifiers.

What is claimed is:

1. A radio receiver comprising an electron tube having a control grid and a screen grid and means for adjusting the amplification of said tube comprising a potentiometer having an adjustable resistance connected between the cathode and screen grid of said tube and a second resistance connected between the cathode and the control grid of said tube, and a battery for applying a potential across said resistance in series, whereby the current which passes through the resistance supplying the biasing voltage to the screen grid is caused to pass also through the resistance for supplying the biasing voltage to the control grid and upon adjustment of said adjustable resistance a change is caused in the battery current flowing through said second resistance.

2. An arrangement according to claim 1 characterized in this that the resistances of the potentiometer are so proportioned as to cause no change in the control grid bias when the screen grid voltage is changed.

3. An arrangement according to claim 1 characterized in this that the resistances of the potentiometer are so proportioned that an adjustment to produce a change of the screen grid voltage will simultaneously cause a higher drop of potential at the resistance for producing the control grid bias.

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