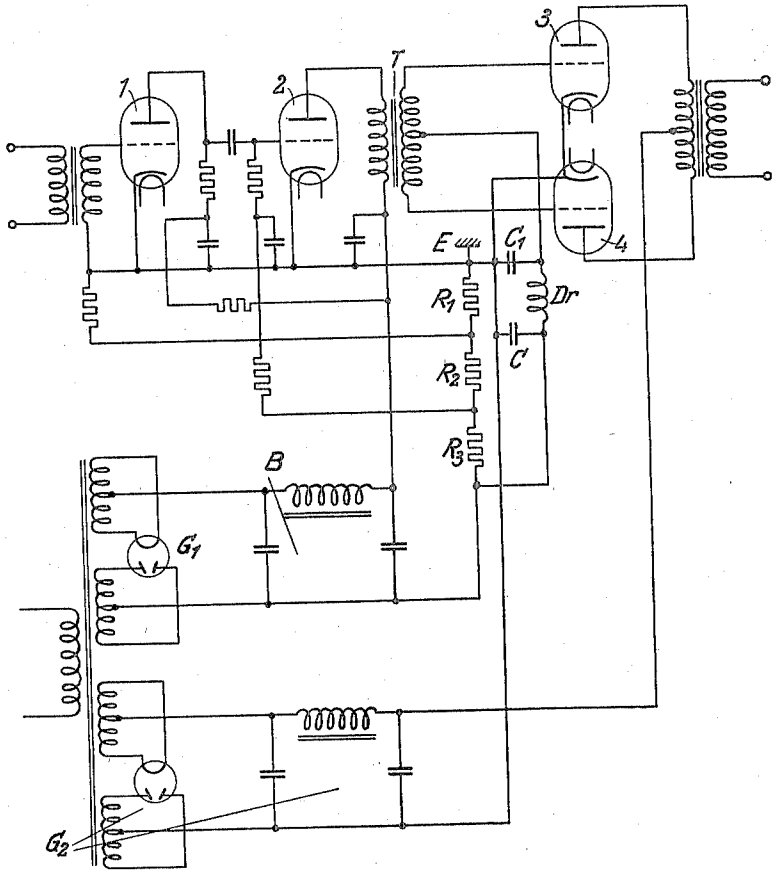
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AMPLIFYING DEVICE

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Inventor.
Wolfgang Hagen
By E. J. Kinney
Attorney

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AMPLIFYING DEVICE

Wolfgang Hagen, Berlin, Germany, assignor to C. Lorenz Aktiengesellschaft, Berlin-Tempelhof, Lorenzweg, Germany, a company

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2 Claims. (Cl. 179—171)

The present invention relates to amplifying devices, and more specifically to class B amplifiers operating with push-pull connected stages. The invention has for its object to provide means for producing the bias potential in such devices.

It is well known in multi-stage amplifiers to arrange the power stages as class B amplifiers in push-pull connection, that is, to operate with such a high negative biasing grid potential that no anode current flows in the state of rest. In this case a particular source must be used from which the biasing grid potential is derived, since the usual manner of drawing the grid bias from a potentiometer forming part of the anode circuit cannot be applied because of the fact that the anode current is subjected to very considerable changes during operation, and these changes would cause the gird bias potential to change with modulation. Therefore, the grid biasing potential has generally been derived from a particular rectifier tube or from a separate biasing potential source.

According to the main feature of the present invention, the biasing grid potential for tubes operating with a fluctuating anode current is derived from the circuit of a tube which functions in another amplifying stage, and the anode current of which is not subjected to substantial changes. This can be accomplished in a very simple manner due to the fact that the preceding tubes operate in the middle of the characteristic and the mean anode current, therefore, remains constant.

The invention will be more readily understood from the following description taken in conjunction with the accompanying drawing, the single figure of which shows a wiring diagram according to one embodiment of the invention.

In the drawing, 1 and 2 denote two thermionic valves. These valves are coupled with one another over a plurality of circuit elements which are of no significance for the present invention and which therefore need not necessarily be described. The anode currents to the two tubes 1 and 2 flow through the resistances R1, R2 and R3 where they set up a potential drop so as to produce the grid biasing potentials for these tubes. The anode potential itself is produced in a transformer-rectifier device G1 and applied to the anodes of the tubes through the smoothing member B. The cathodes of the tubes 1 and 2 are earthed. The tube 1 receives its grid potential from the resistance R1, while the grid potential for the tube 2 is drawn from the resistances R1 and R2.

Moreover, the arrangement shown comprises a push-pull stage having two tubes 3 and 4 which operate with a fluctuating anode current. These tubes receive their control voltages from a transformer T, while their anode potentials are produced in a separate rectifier device G2. The grid potential for this amplification stage is according to the invention derived from a potentiometer constituted by the resistances R1+R2+R3.

The grid potentials may be conveyed through additional smoothing means formed by a choke coil Dr and the condensers C and C1.

The arrangement heretofore described and demonstrated involves the specific advantage that it is possible without additional circuit elements to supply with a constant biasing potential the tubes which operate with a changing anode current.

What is claimed is:

1. In an amplifying device having a plurality of thermionic valve amplifying stages operating with a substantially constant anode current and a further push-pull connected class B amplifying stage comprising a pair of thermionic valves having cathode grids and anodes and operating with a fluctuating anode current, an arrangement for supplying said valves with the necessary direct current potentials, said arrangement comprising a first direct current supply circuit connected to said first mentioned stages to cause the flow of space current therethrough, a second supply circuit connected to said last mentioned stage to cause the flow of space current therethrough, a resistor connected in series with said first supply circuit and said first mentioned stages for causing said flow of space current through said first mentioned stages alone to set up a potential drop, and connections for applying said potential drop to said grids of said last mentioned stage.

2. In an amplifying device as set forth in claim 1, having additional smoothing means inserted in the biasing circuit of said last mentioned stage.

WOLFGANG HAGEN.