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AUDIO AND HIGH FREQUENCY AMPLIFYING TUBE

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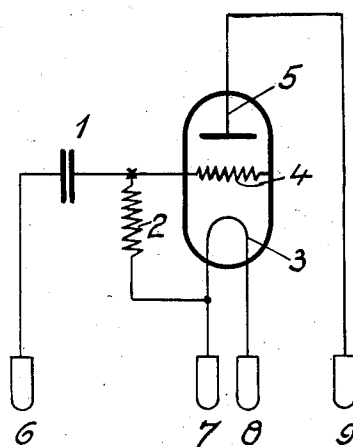


Fig 1.

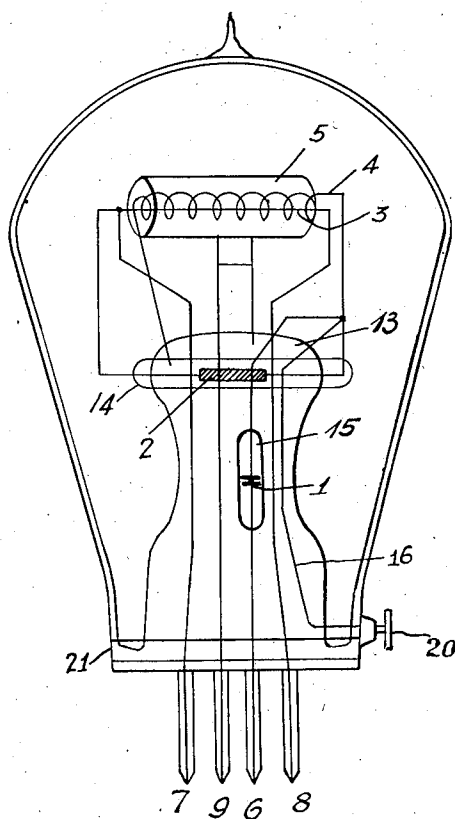


Fig 2.

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AUDIO AND HIGH FREQUENCY AMPLIFYING TUBE

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This invention relates to an audio and high-frequency amplifying tube and consists essentially in that the several elements forming the audio or high-frequency amplifying connections, such as the grid-resistance or the grid block-condenser, are mounted within the tube, whereby an audio or high-frequency amplifying unit will be produced, which may be readily inserted as a whole into any desired apparatus without the necessity of making any further connections.

A circuit element which is frequently used in high-frequency work is an amplifying tube with audio-condenser and resistance for the grid. The amplifying tube in this case may also be constructed as a tube with a single or double grid. This invention may be applied to all kinds of vacuum tubes with control electrodes.

This invention consists further in so constructing the vacuum tube itself, that a single, double or multiple audio or high-frequency amplifying system may be obtained by merely connecting properly constructed tubes with each other.

The invention will be described hereafter with the aid of the accompanying drawings, in which:

Fig. 1 is a wiring diagram of a circuit element according to my invention;

Fig. 2 shows a preferred form of construction of my circuit element.

Fig. 1 shows the principle of connecting a circuit element, which consists of a block-condenser 1, a resistance 2 for the grid, a cathode 3, a grid 4 and an anode 5. According to this invention the parts which are shown in Fig. 1 are structurally united in such a manner within the tube, that by inserting the tube, which, for instance, may have four contacts, into a normal tube socket, the desired audio or high-frequency amplifying connections may at once be accomplished. The four contacts are designated by 6, 7, 8 and 9.

Fig. 2 shows an example of a construction according to this invention. 5 is the anode cylinder, 4 the grid and 3 the heating filament. These parts of the system are mounted upon the supporting foot 13 in a well known

manner and molten through the same. According to this invention, the block condenser 1 and the resistance 2 for the grid are mounted also within the tube itself or within the tube base. In Fig. 2 I have shown the resistance 2 within the tube and condenser 1 within the supporting foot 13. According to Figure 2, the grid 4 is therefore not directly led outward, but through a grid resistance 2, which is preferably enclosed airtight within an evacuated glass container 14, and is mounted, for instance, upon the supporting foot, said resistance 2 being indicated by shaded lines. This resistance is connected by one of its ends to the grid, while the other end is connected to an end of the filament. The resistance is of course so mounted within the interior of the tube, that an injurious load of the filament or of the grid will not take place. It may, for instance be molten onto the supporting foot or it may be mounted by means of special holding wires. The grid condenser 1 is enclosed in an air-tight glass container 15. The container is placed within the interior of the supporting foot, as indicated in Fig. 2. If desired it may be placed within the evacuated portion of the tube. The block condenser is indicated at 1 in container 15 in Fig. 2 and may, for instance, consist of two foil strips, which are wound one around the other by having a sheet of mica interposed between the same.

In other respects the wires 6, 7, 8 and 9 are connected in the known manner with the contact plugs which are provided in the base of the tube.

The advantage of the construction according to this invention consists in, that a tube of this kind which is inserted into any desired apparatus will give the effect of the audion without the necessity of making any further connections, and in addition to this will prevent any change in the value of the grid resistance and any wrong selection of the same.

Occasionally it may be of advantage to also provide an outer connection for the connecting point between the resistance and the grid, said point being designated with a cross in Fig. 1, either for the purpose of intro-

ducing auxiliary voltages or in order to render possible connections, whereby no grid condenser is employed. In this case a connecting wire 16 leading from this point is also molten through the supporting foot and carried either to a fifth contact plug 20 or to the metal ring 21, which connects the insulating plate carrying the contact plugs with the glass body of the tube. For this purpose this ring is preferably provided with a binding post, which may serve for making connections.

I claim:

1. A vacuum tube comprising an anode, a filament, a grid, a grid condenser and a grid leak, leads to said anode, filament, condenser and grid leak and another lead making a direct connection with said grid.

2. A thermionic tube comprising a grid, a filament and a plate; a condenser and a resistance within and structurally united with said tube, a common connection within the tube uniting a lead to the grid, a lead to the resistance, a lead to the condenser, and an external lead; and other external leads to said plate, filament and condenser.

3. A thermionic tube, comprising a filament, a grid, an anode, a condenser, an insulating container housing said condenser, a resistance, an insulating container housing said resistance, and a stem containing said containers.

4. A thermionic tube having a stem, including a resistance and a condenser mounted in said stem.

5. A vacuum tube, comprising a condenser, a glass container for said condenser, a stem, a resistance, and a glass container for said resistance, the said resistance and condenser together with their respective containers being mounted in said stem.

In testimony whereof I have affixed my signature.

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