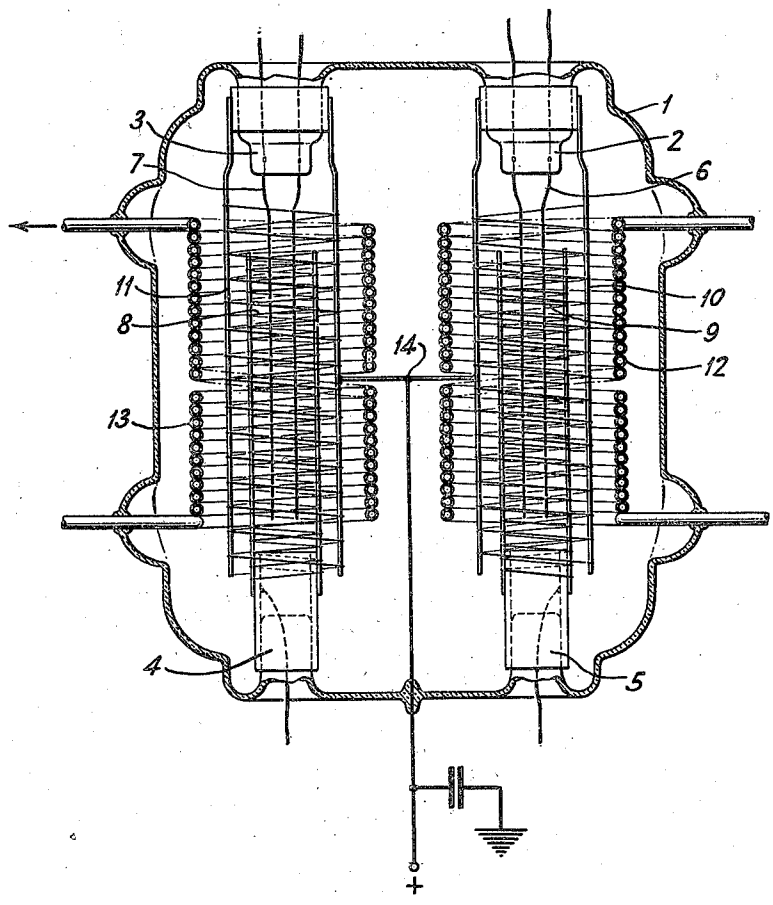
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ELECTRON DISCHARGE DEVICE

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ELECTRON DISCHARGE DEVICE

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1 Claim. (Cl. 250—27.5)

This invention relates to an electron discharge device comprising two or more electrode assemblies for amplifying or generating electrical oscillations, each system comprising at least two grids.

Discharge devices are known for amplifying or generating electrical oscillations comprising two or more grids, such as the tetrodes or pentodes with screen grids.

It has been found that when such tubes are used for short and ultra-short waves it is to advantage to connect them in push-pull with the anodes of the two tubes interconnected in the output circuit, and with the screen grids connected to a point on the anode source of voltage. Unfortunately when operated at high frequencies the screen grid connections are too long and cause losses in the output circuit.

Lead-in wires may, according to this invention, be of minimum length and inductance. This improved device comprises two or more electrode systems each of which contains at least two grids with the screen grids of the systems interconnected by conductors of minimum length. According to the invention this connection may be, in some tubes, of the order of 10 to 15 cm.

According to one form of construction embodying this invention the anodes are fluid cooled metal tubes coiled into cylinders and concentrically within each cylinder are mounted cooperating grids and cathode. The cylindrical mount assemblies are preferably mounted parallel to each other to obtain compactness within their common envelope with minimum electronic interaction.

According to one form of construction of this invention the improved discharge tube can be used in a push-pull circuit, the two mounts being housed in one bulb or envelope.

The invention will be more clearly understood by reference to the accompanying drawing which shows, by way of example, one embodiment of the invention wherein two electrode assemblies are housed in a single tube. The envelope wall 1 comprises reentrant stems with presses 2, 3, 4, and 5. The two electrode assemblies consist of the cathodes 6 and 7, the control grids 8 and 9, the screened grids 10 and 11, and the anodes 12 and 13, the anodes consisting of copper tubing. It clearly appears from the drawing how the cooling of these anodes can be effected. At 14 it is schematically illustrated how the screen grids may be coupled together with a short lateral conductor connected at its ends to the side rods of the grids. The conductor may be connected to the grids at the centers or near the ends of the grids and connected to a lead-in wire and a direct current source of potential.

It will be appreciated that the invention is not limited to the specific form of construction illustrated and that it may include many other electrode constructions. It is possible, for instance, to use electrode assemblies having more than two grids, as in pentodes.

We claim:

An electron discharge device comprising an envelope, enclosing one electrode assembly with a cylindrical anode and a cooperating cathode, control grid and tubular screen grid, and a second electrode assembly parallel to and beside the first mentioned assembly in the envelope comprising a second anode, a second cathode, and a second tubular screen grid, and a conductive connection extending through openings in the wall of said anodes between corresponding points on said screen grids intermediate their ends of minimum grid-to-grid spacing and of a length equal to said spacing.

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