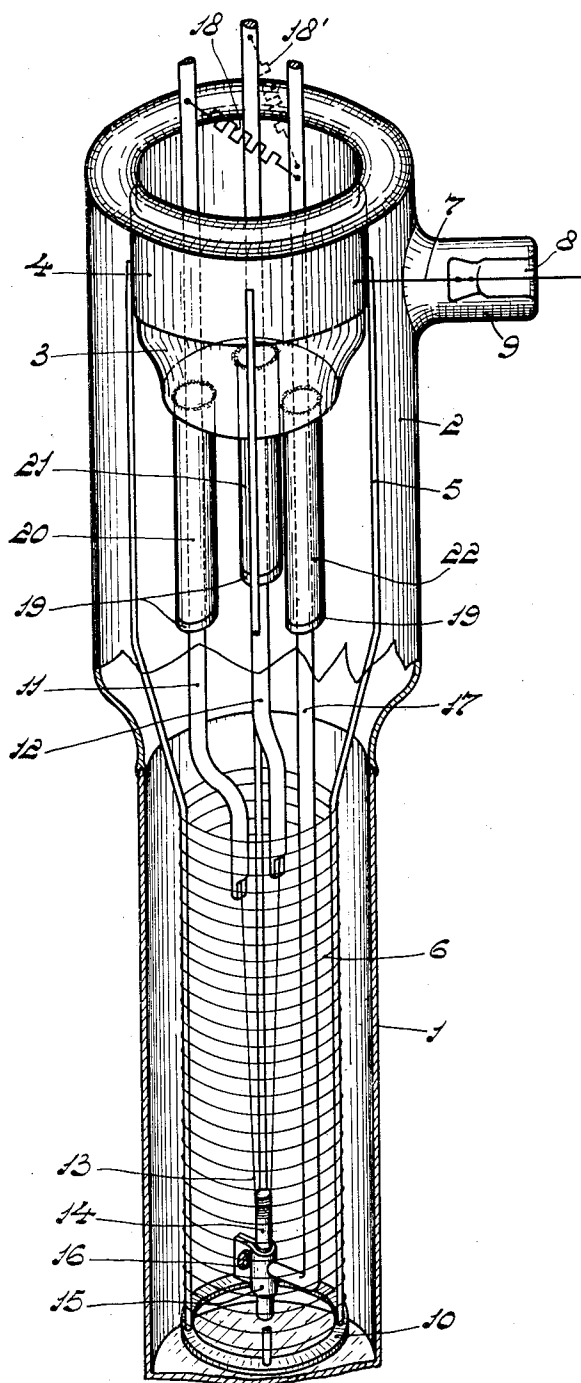


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ELECTRON DISCHARGE TUBE
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ELECTRON DISCHARGE TUBE

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and in the Netherlands and Great Britain
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1 Claim. (Cl. 250—27.5)

This invention relates to electron discharge tubes and more particularly to high tension discharge tubes such as transmission valves for wireless signals.

5 In many cases electron discharge tubes of the type in which the filament is supported by means of an insulated supporting device have been found to deteriorate after a relatively short period of operation.

10 During the operation of the tube the insulated support may be charged to a potential, which may give rise to abnormal discharges in the tube. This is believed to be the principal cause of the deterioration of such tubes.

15 This invention has for its object to improve electron discharge tubes so that under a normal treatment they will have a long operating life. According to the invention, in electron discharge tubes of the type having the filament supported
20 by means of an insulated supporting member, one or more resistances of suitable value are connected between the supporting member and one or both of the filament heating conductors.

25 Illustrated in the single figure of the accompanying drawing is a particular form of the invention applied to a discharge tube of the same general construction as that of Fig. 5 of the Patent 1,852,739, issued April 5, 1932, and assigned to the same assignee as the present application.

30 As shown by this embodiment of the invention, the discharge tube contains a hairpin-like filament, the apex of which is connected to a small rod, which is movable in a central guide secured to a supporting device mounted in an insulated manner.

35 Referring to the drawing, the wall of the discharge tube has a metal part 1 constituting the anode of the tube, and an insulating part 2, for example of glass, which is sealed to the metallic anode.

40 This insulating part 2 has a tubular re-entrant portion 3 around which is clamped a metal collar 4 which carries the supports 5 of the grid wire 6, the supply wire of which is led out through a pinch 8 located in an extension 9. At the lower side, the supports 5 are connected to one another by a member 10. 11 and 12 refer to the usual leading-in filament conductors for
45 a hairpin-like filament 13, which may be heated in the usual manner by direct current or by alternating current of low tension. 14 is a small rod for example of glass or quartz or other insulating material to which is connected the apex
50 of the hairpin and which is movable in a central

guide 15. The guide 15 contains an adjustable machine screw 16 to secure the member 14 in position.

The central guide 15 is carried by a supporting device 17 which is mounted in an insulated manner. Both the central guide and the supporting device may be of a material with a high melting point, for example tungsten. 18 is a resistance schematically shown by way of example as an ohmic resistance and connected outside the tube between one of the filament leading-in conductors and the supporting device. Due to this resistance it will not be possible for the supporting device 17 to be charged to unduly high potentials. A second resistance 18' may be provided. 19 designates small hoods preferably of ferrochrome which hermetically seal the glass tubes 20, 21, and 22 to the re-entrant portion 3 of the tube.

75 While we have shown only one modification of our invention, it is to be understood that it can be used in various other ways and we intend to be limited only by the scope of the appended claim.

What we claim is:

80 A cathode structure for an electron discharge tube provided with an evacuated envelope, comprising a looped filament in said envelope, a pair of leads extending thru the wall of said envelope and connected to the ends of said filament, a metal support rod substantially co-extensive with the filament and its leads projecting into said envelope, an insulator on one end of said rod for supporting the bend of said filament, and an external resistor connected between the other end of said rod and at least one of said filament leads.

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