

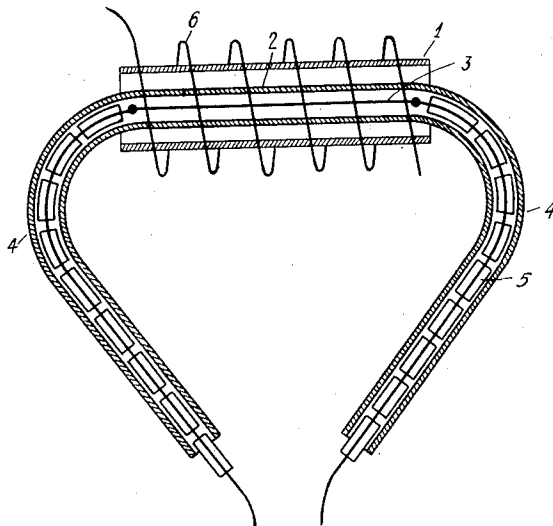
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INDIRECTLY HEATED CATHODE

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INDIRECTLY HEATED CATHODE

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2 Claims. (Cl. 250—27.5)

The present invention is concerned with a new construction and arrangement of filaments in indirectly heated cathodes for vacuum tubes, especially the kind connected with alternating current supply lines or networks. In these tubes known in the prior art a great inconvenience has been found to reside in that the alternating current potentials required for heating, especially when the tubes are connected for use as audions, result in variations in the grid-filament potential and thus distortions in reproduction.

Now, according to the present invention this inconvenience is obviated by that the heater element is screened from the emitting surface or film. This is insured by that the resistor heated by the alternating current is wholly or partly surrounded by a tubular metallic screen, such as a metallic hose or grate in such a manner that the heater wire is shielded from the emitting cathode or filament layer and the other electrodes. In accordance with a modification the disturbing action of the alternating current is entirely eliminated by virtue of the fact that the said protective hose is brought out of the tube and connected to a definite potential, so that electrostatic coupling between the active filament and the grid and the plate is avoided. Another scheme would be to bring both ends out of the tube and to compensate the harmful potential fluctuations by a convenient direct current or alternating current potential.

The manner in which this invention is carried out will be readily understood from the following description taken in connection with the accompanying drawing, which discloses one specific embodiment by way of example.

The single figure is a fragmentary diagrammatic view of a specific embodiment of this invention.

Referring to the drawing, 1 denotes the active coating of the cathode, 2 the insulated protective

screen and 3 the heater wire. 4 designates the metallic protector tube or metallic hose which forms a continuation of the screen 2 at each end thereof according to this invention, the metallic protector tubes being brought out of the tube, and containing the heater wire supply leads which are insulated therefrom by means of glass or quartz beads 5. 6 is a control grid which is disposed spirally about the heater in well known manner.

It will be understood that many changes in the specific embodiment disclosed herein will readily suggest themselves to those skilled in the art. For example, the coating 1 may be deposited directly upon the tube 4. I therefore do not intend to be limited except as defined in the appended claims.

Having thus described my invention, I claim:

1. An indirectly heated cathode for an electron discharge device, comprising a rectilinear heater element, a tubular electron emitting member surrounding and spaced from said heater element, a tubular metallic screen interposed between said heater and said electron emitting member and separated from both the heater and the electron emitting member by vacuous space, and insulating means at each end of the tubular screen for maintaining said heater element in spaced relation with respect to said tubular screen.

2. An indirectly heated cathode for an electron discharge device, comprising a heater element, a pair of lead-in conductors connected to the heater terminals, a cathode sleeve substantially co-extensive with and surrounding the heater, a tubular metallic screen interposed between said heater and said cathode sleeve and separated from each by vacuous space, said tubular metallic screen extending beyond the heater terminals and separately enclosing each of the heater lead-in conductors.

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