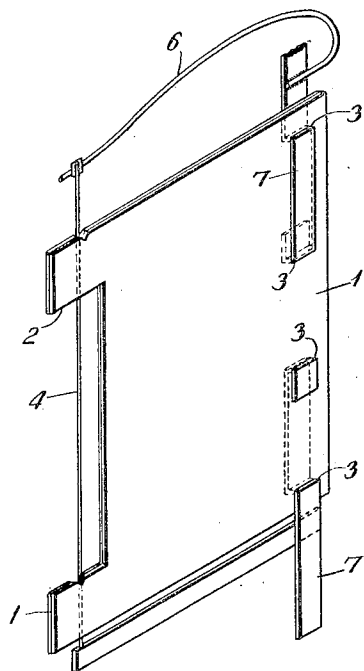


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CATHODE FOR THERMIONIC TUBES

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CATHODE FOR THERMIONIC TUBES

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11 Claims. (Cl. 250—27.5)

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The present invention concerns improvements in or relating to the manufacture of thermionic valves and more particularly concerns the mounting of a filament.

An object of the invention is to mount a filament in such a way that it forms a complete unit in itself of plate-like form which is suitable for example for inserting with a plate-like grid or grids and a plate-like anode or anodes in a stack as described in Diggle's Application Ser. No. 735,445.

According to a feature of the invention the filament lies substantially in the plane of a mica plate or plates and extends across an opening in said plate or plates.

According to another feature of the invention the filament is supported between and across openings in two mica plates which are themselves secured together with the filament between them.

A preferred form of carrying the invention into effect will be described by way of example with reference to the accompanying drawing which is a perspective view of a filament mounting, on an enlarged scale.

Two rectangular plates of mica 1 which are conveniently similar in all respects are each provided with a long rectangular opening 2 at one side and at the other side with two pairs of narrow, spaced slots 3. The plates 1 are placed over one another so that all the openings in one plate align with all the openings in the other plate, and are held together by two nickel strips 7 one of which passes through the two slots 3 of a pair and the other passes through the two slots 3 of the other pair. The strips 7 are bent over to hold the plates together firmly. To one strip 7 is secured a curved spring 6 and to the other an extension nickel strip 5. The filament 4 is provided with tags at each end and these are welded or swaged respectively to the curved spring 6 and the extension strip 5. It is arranged that the filament extends centrally along the opening 2 and passes at each end between the two plates 1. The strips 7 are respectively swaged or welded to two filament connecting or terminal wires.

Such an arrangement enables the filament wire to be assembled, mounted, tensioned and tested prior to inclusion in a valve assembly. If the grids are also of plate form having openings of equal size to the filament plate-openings and are of such a reduced size that when placed against the filament they do not reach the nickel tags it will be appreciated that the stacking of the electrodes can take place as described in the application above referred to.

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It will be appreciated that the opening 2 may also be placed centrally of the plates 1 instead of along one edge.

It will further be appreciated that it is not essential to use two plates 1 of mica but that one plate only may be used with suitable precaution for subsequent insulation of the filament when the electrode stack is prepared.

I claim:

1. A planar filament mounting for thermionic tubes comprising a mica plate, a filament lying substantially in the plane of the mica plate extending across an opening in said plate and stretched between a metal extension strip supported on the mica plate and a spring supported laterally of the filament on the mica plate.

2. A filament mounting for thermionic tubes comprising two mica plates which are secured together with the filament between them and with the filament supported between and across openings in said plates.

3. A planar filament mounting for thermionic tubes comprising a mica plate having an opening and slots therein, a filament lying substantially in the plane of the mica plate and extending across the opening therein, metal strips passing through slots in the plates, a metal extension strip supported on the mica plate by one of said strips and supporting one end of the filament, and a spring carried laterally of the filament on the mica plate by means of one of said strips and serving as a support for the other end of the filament.

4. A planar filament mounting for thermionic tubes comprising a mica plate having an opening and slots therein, a filament lying substantially in the plane of the mica plate and extending across the opening therein, metal strips passing through slots in the plates, a metal extension strip supported on the mica plate by one of said strips and supporting one end of the filament, and a cantilever spring carried laterally of the filament on the mica plate by means of one of said strips and serving as a support for the other end of the filament.

5. A planar filament mounting for thermionic tubes comprising a mica plate having an opening and slots therein, a filament lying substantially in the plane of the mica plate and extending across the opening therein, metal strips passing through slots in the plates, a metal extension strip supported on the mica plate by one of said strips and supporting one end of the filament, and a cantilever spring carried laterally of the filament on the mica plate by means of one

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of said strips and serving as a support for the other end of the filament, said opening in the mica plate being placed centrally thereof.

6. A planar filament mounting for thermionic tubes comprising a mica plate having an opening and slots therein, a filament lying substantially in the plane of the mica plate and extending across the opening therein, metal strips passing through slots in the plates, a metal extension strip supported on the mica plate by one of said strips and supporting one end of the filament, and a cantilever spring carried laterally of the filament on the mica plate by means of one of said strips and serving as a support for the other end of the filament, said opening in the mica plate lying at one edge of said plate.

7. A planar filament mounting for thermionic tubes comprising two thin mica plates secured together, said plates having registering openings and slots therein, a filament lying between said plates, and extending across said opening, metal strips passing through slots in the plates, a metal extension strip supported on the mica plate by one of said strips and supporting one end of the filament, and a spring carried laterally of the filament on the mica plate by means of one of said strips and serving as a support for the other end of the filament.

8. A planar filament mounting for thermionic tubes comprising a mica plate having an opening and a plurality of slots therein, a first metal strip supported on said plate by passage through certain of said slots, a metal extension strip carried by said first metal strip, a second metal strip supported on said plate by passage through other of said slots, a spring carried by said second strip, a filament lying substantially in the plane of said mica plate and extending across the opening therein and stretched between said metal extension strip and said spring.

9. A planar mounting for the filamentary cathode of a thermionic vacuum tube comprising two mica plates held together in face-to-face relationship and having aligned openings therein, a filament wire located in between said plates and

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spanning said aligned openings and two metal parts each of thin sheet form disposed substantially in the plane of said plates and held in position thereby and connected respectively to said filament wire beyond the opposing ends of said aligned openings in said plates.

10. A planar mounting for the filament of a thermionic vacuum tube comprising two thin mica plates secured together in face-to-face relationship and each having an opening therein, said openings being in alignment with one another, a first metal strip disposed substantially in the plane of said plates and having a part held by said plates and a further part disposed beyond one end of said aligned openings, a second metal strip disposed substantially in the plane of said plates and having a part held by said plates and a further part disposed beyond the opposite end of said aligned openings and a filament wire stretched between said further parts of said first and second metal strips and disposed between said plates and spanning said aligned openings.

11. A filament mounting for a thermionic vacuum tube comprising a U-shaped structure embodying a mica-sheet member, a rigid first limb of metal secured at one end to said mica-sheet member, a resilient second limb of metal secured at one end to said mica-sheet member and a single length of filament wire extending between the free ends of said limbs.

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