

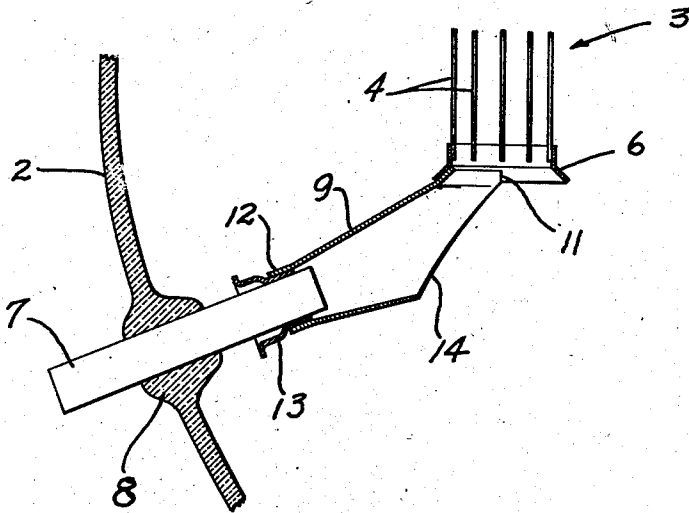
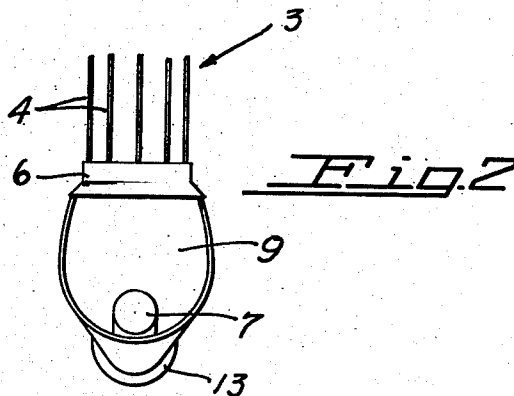
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ELECTRON TUBE STRUCTURE

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Fig. 1



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ELECTRON TUBE STRUCTURE

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2 Claims. (Cl. 250—27.5)

Our invention relates to electron tubes, and more particularly to improved means for supporting electrodes in such tubes.

It is among the objects of our invention to provide an electrode supporting structure which holds the electrode in fixed position under shock and vibration.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of our invention. It is to be understood that we do not limit ourselves to this disclosure of species of our invention as we may adopt variant embodiments thereof within the scope of the claims.

Referring to the drawing:

Figure 1 is a vertical sectional view of tube portions showing the electrode supporting structure embodying our invention; and

Figure 2 is a fragmentary elevational view looking at the end of the supporting bracket.

In terms of broad inclusion, our electron tube structure comprises an envelope, an electrode in the envelope, a lead projecting into the envelope, and a conoidal supporting bracket having its diverging end secured to the base of the electrode and its converging end secured to the lead. In our preferred construction the bracket axis is angularly disposed to the electrode axis, and the diverging edge portions have a recess in the underside thereof to provide an unobstructed path below the electrode.

In greater detail, and referring to the drawing, our electron tube structure comprises an envelope 2 of glass or the like. This envelope may be of any desired size or shape, only portions of the envelope wall being shown since this is sufficient to illustrate the invention. An electrode 3, such as a grid having wire bars 4 terminating in a metal base ring 6, is disposed about a vertical axis in the envelope. Other coaxial electrodes, such as a cathode projecting upwardly into the grid and a plate surrounding the same, are also present in a tube of the character described, but these are not shown as they form no part of the invention.

The lead-in conductor or lead for the electrode comprises a rod 7 of tungsten or the like fused to the envelope wall at seal 8. This lead extends transversely through the wall at a point below electrode 3 and projects into the envelope along an axis angularly disposed to the axis of the electrode. By this angular arrangement seal 8 is located out of a direct path of electron bombardment so that there is less chance for the glass cracking at the seal. Also the lead is positioned close to the electrode, making it possible to pro-

vide a short direct connection between external circuit components and the electrode.

Electrode 3 is supported on lead 7 by an improved bracket 9 of conoidal or cone-like shape disposed coaxially with lead 7 and having its diverging end secured to the electrode and its converging end secured to the lead. This bracket is made of a suitable metal and has an upturned flange 11 along the upper edge of its diverging end welded to base ring 6 of the electrode. The converging end terminates in a sleeve 12 encircling lead 7. A collar 13 is preferably interposed between the bracket and lead, these parts being all secured together by welding. The collar preferably has an enlarged or flanged portion extending outwardly a distance from the lead at the foot of the bracket.

In order to provide an unobstructed path below the electrode a recess 14 is cut in the underside portions of the diverging end of bracket 9. This gives clearance for other parts, such as a cathode, projecting upwardly into the grid.

The improved bracket, by reason of its arrangement and shape, gives ample support to the electrode and supplies the necessary rigidity to prevent movement of the parts under shock and vibration. Rigid mounting of electrodes in electron tubes is particularly important to maintain spacings and prevent shorts from developing.

We claim:

1. An electron tube structure comprising an envelope, an electrode disposed about a vertical axis in the envelope, a ring on the lower end of the electrode, a lead projecting into the envelope, and a conoidal supporting bracket having an axis angularly disposed to the axis of said electrode with its converging end secured to the inner end of the lead and its diverging end positioned under the electrode, the diverging end portions of said bracket terminating in an upstanding arcuate flange secured to said ring.

2. An electron tube structure comprising an envelope, an electrode disposed about a vertical axis in the envelope, a ring on the lower end of the electrode, a lead projecting into the envelope, a conoidal supporting bracket having an axis angularly disposed to the axis of said electrode with its converging end secured to the inner end of the lead and its diverging end positioned under the electrode, the diverging end portions of said bracket terminating in an upstanding arcuate flange secured to said ring, and a radially extending flange disposed about the lead adjacent the converging end of the bracket.

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