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C. HOPPER, JR

3,197,546

GETTER SUPPORT ASSEMBLY

Filed July 23, 1962

FIG.1.

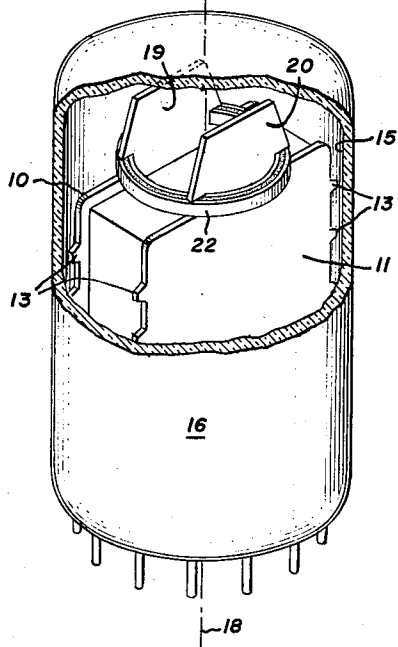


FIG.2.

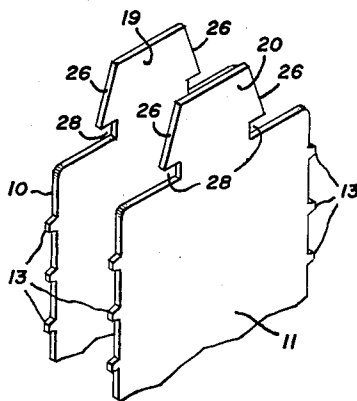


FIG.3.

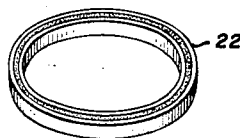
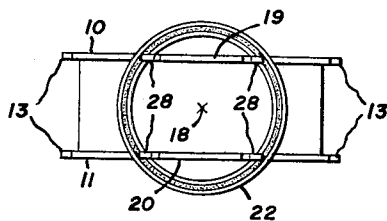


FIG.4.



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GETTER SUPPORT ASSEMBLY

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7 Claims. (Cl. 174—50.54)

This invention relates to electron discharge tubes, and in particular, to an assembly for supporting a getter within such tubes.

In prior-art electron tubes, the getter element, comprising a material which is capable of readily absorbing undesirable gases, has been mounted by welding the element to a convenient electrode or other metallic portion of the electron discharge device. This getter-welding operation requires aligning tools and increases the complexity of the assembly process. In addition, welding of the getter often results in inconsistent getter positioning within the electron tube.

It is an object of the invention to provide an improved getter mount in an electron tube.

It is another object of the invention to provide a getter support assembly which permits accurate and consistent positioning of the getter to obtain consistent getter flash.

It is a further object of the invention to provide a getter support assembly which effects rigid mounting of the getter element without welding.

Briefly stated, in accordance with the illustrated embodiments of the invention, mounting of a getter element within an electron tube is effected by providing properly located apertures or slots in the insulative supports of the electron discharge device and shaping the getter so that portions of the getter pass through, or are received snugly within these apertures, or slots, thereby rigidly positioning the getter relative to the insulative supports and obviating welding of the getter.

The subject matter of the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation may best be understood by reference to the following description taken in connection with the accompanying drawing in which:

FIG. 1 is a cut-away perspective view of an electron tube incorporating a preferred embodiment of the getter support assembly of the invention;

FIG. 2 is a perspective view of a portion of the spaced insulative supports utilized in the embodiment of the getter support assembly illustrated in FIG. 1;

FIG. 3 illustrates the type of getter employed in the embodiment of the getter support assembly of the invention shown in FIG. 1;

FIG. 4 is a plan view illustrating the completed assembly of the insulative supports and getter shown in FIGS. 2 and 3.

The getter support assembly of the invention as incorporated in an electron discharge tube having vertically disposed spaced insulative members is shown in FIG. 1. Insulative members 10 and 11 serve to support the electrodes (not shown) of an electron discharge device and maintain them in spaced relation and may comprise any suitable material, e.g. mica. Snubbers 13 extending from the vertical edges of the insulative members 10 and 11 contact the lateral wall 15 of envelope 16, to provide lateral support for the insulative members within envelope 16. The longitudinal axis of the electron tube, comprising envelope 16, insulative members 10 and 11, and the electrodes supported thereby, is indicated by reference numeral 18. The electrode mount structure and electron discharge device embodying the same and utilizing vertically disposed insulative members is not part of the present invention but is further described and

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claimed in application S.N. 211,556 of J. F. Stephens, filed concurrently herewith and assigned to the assignee of the present application.

In accordance with the invention, insulative members 10 and 11 are formed so that tabs 19 and 20 extend from corresponding edges of the insulative members. Apertures or slots 28 formed in tabs 19 and 20 engage a ring-shaped getter support 22, as will be described in greater detail with reference to FIGS. 2-4, to rigidly support getter support 22 within the electron tube without welding.

The top portion of the vertically disposed spaced insulative members of the electron tube shown in FIG. 1 and the projecting tabs 19 and 20 which support the getter are shown in FIG. 2. Tabs 19 and 20 are provided with tapered sides 26. Apertures or slots in the form of notches 28 are formed in each side of tabs 19 and 20 below the tapered portions and adjacent the main bodies of the insulative supports 10 and 11. The dimensions of the notches 28 correspond to the dimensions of the getter support so that the notches may snugly receive and engage portions of the getter to accurately and consistently position the getter and provide a rigid mount therefor.

A type of getter which may be used with the previously described vertically disposed spaced insulative members is shown in FIG. 3. The getter 22 is shown to be circular but may be any convenient shape so as to interact with the notches 28 of the spaced insulative members 10 and 11, shown in FIG. 2.

The assembly of ring getter 22 and insulative members 10 and 11 is effected by positioning the ring getter so that tabs 19 and 20 pass through the opening therein and slipping the ring getter over the tapered sides 26, causing the tabs 19 and 20 to flex slightly toward each other. Upon reaching the main body of the insulative supports 10 and 11, the ring getter 22 snaps into the notches 28, allowing tabs 19 and 20 to return to their normal unflexed positions. Interaction of ring getter 22 with notches 28 provides a rigid mount protecting getter 22 from shock and vibration. The getter support assembly of the invention facilitates accurate and consistent location of the getter 22 in each tube of a given design, to thereby foster uniformity in getter flash. The getter assembly of the invention also obviates welding of the getter element and facilitates assembly of the electron tube by virtue of the fact that the assembly operation only requires that the getter 22 be slipped down over the tabs 19 and 20 and snapped into notches 28.

FIG. 4 illustrates, in plan view, the completed assembly with the ring getter 22 mounted on the insulative supports 10 and 11 and engaging notches 28 in tabs 19 and 20 respectively. As previously described, insulative members 10 and 11 also serve to support the electrodes of an electron discharge device. The ability of the ring getter 22 to provide clamping support for the insulative members 10 and 11 is apparent in FIG. 4, where it is seen that ring getter 22 restricts the separation of insulative members 10 and 11.

Although the invention and its operation has been described with reference to a preferred embodiment, it is intended that the invention is not limited to the particular details shown or described which may be varied without departing from the spirit and scope of the invention and the appended claims.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. In an electron tube, a getter supporting arrangement, comprising a pair of spaced insulative members supporting electrodes of the electron tube, a tab extending from a corresponding edge of each of said pair of spaced insulative members, said tabs having a notched portion in each side thereof, and a ring-shaped getter encircling said

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taps and directly engaging said notched portions in supporting relation whereby to accurately and rigidly position said getter in the electron tube.

2. The getter supporting arrangement of claim 1 in which said tabs are tapered with the transverse dimension of said tabs adjacent the main body of each of said pair of insulative members being greater than the corresponding dimension at the opposite ends of said tabs.

3. The getter supporting arrangement of claim 1 in which said tabs are trapezoidally shaped with the greater dimension of the trapezoid adjacent the main body of each of said pair of insulative members, and in which said notched portions are formed in the ends of said tabs having the greater dimension and adjacent the main body of each of said pair of insulative members.

4. The getter supporting arrangement of claim 1 in which said ring-shaped getter is of circular configuration.

5. The getter supporting arrangement of claim 4 in which said pair of insulative members are of flexible material, whereby said ring-shaped getter may be slipped over the tabs causing said tabs to flex as the getter is pushed toward said notched portions and, upon engagement of the ring-shaped getter in said notches, to return to normal unflexed position.

6. The getter supporting arrangement of claim 1 in

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which said pair of insulative members lie in planes parallel to the axis of the electron tube, and the plane of said getter is normal to the axis of the tube.

7. In an electron tube, a getter supporting arrangement, comprising a pair of spaced insulative members supporting electrodes of the electron tube, said members having a slot in each said member and a ring-shaped getter solely and directly supported by said pair of insulative members having projecting portions which engage the slots in said spaced insulative members.

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