May 21, 1957 C. W. HEATH 2,793,351

VACUUM TUBE HOLDERS FOR PRINTED WIRE PANELS

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FIG. 1.

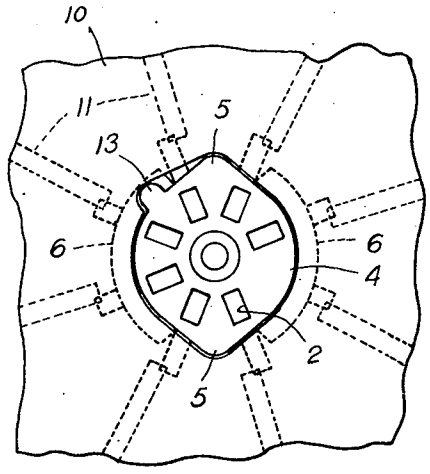


FIG. 3.

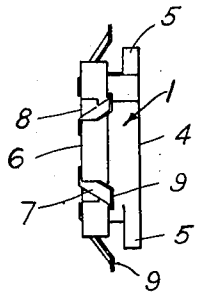
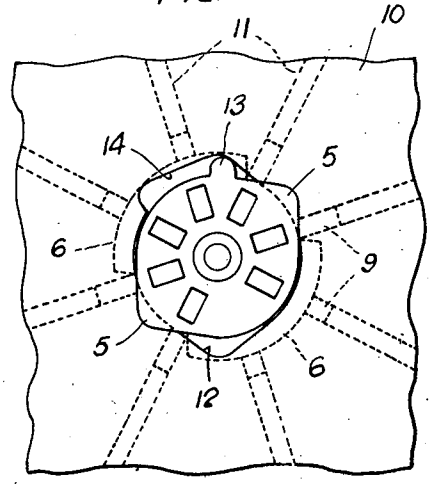


FIG. 2.



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VACUUM TUBE HOLDERS FOR PRINTED WIRE PANELS

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Application June 23, 1954, Serial No. 438,702

1 Claim. (Cl. 339—126)

This invention relates to holders for thermionic valves, electrical plugs or like electrical devices having projecting terminal prongs and electrical assemblies including such holders mounted on an apertured panel or like support having electrical circuit connections printed or otherwise mounted or formed on at least one face thereof.

It is an object of the invention to provide an improved form of holder and means for mounting it on an apertured panel so as to facilitate electrical connection of contacts in the holder with electrical circuit connections on the panel.

The present invention comprises the combination of a panel or support of insulating material having an aperture therein, electrical circuit connections printed or otherwise mounted or formed on at least one face of said panel, a holder for a thermionic valve or plug rotatably mounted in said aperture. Said holder including a body portion disposed in the aperture, means for retaining said holder in assembly with said panel, means for locating said holder in predetermined position relative to said panel and one or more conducting elements projecting laterally of said body and making electrical contact with the said electrical circuit connections on the adjacent face of the panel, when said body is in said predetermined position.

The holder may be provided with a series of conducting elements extending radially of the body of the holder, the elements being integral with prong receiving contacts mounted in bores in the holder.

The means for retaining the holder in assembly with the panel may comprise axially spaced abutments respectively engaging on opposite faces of the panel.

The invention also includes a holder for a thermionic valve, electrical plug or other electrical device having projecting terminal prongs adapted to be mounted in an aperture in a panel or support, the holder comprising a body of insulating material provided with axially spaced abutments for engaging opposite faces of the panel or support, means for locating the holder in a predetermined position in said aperture, a series of pin receiving bores in said body, electrical contacts in said bores, and electrical conducting elements connected with said contacts and projecting laterally of the said body beyond the peripheral edge thereof.

To enable the invention to be fully understood it will now be described with reference to the accompanying drawing, in which:

Fig. 1 is a plan view of a holder for a thermionic valve showing the first step in assembling it in an aperture in a panel;

Fig. 2 is a view similar to Fig. 1 but showing the holder in final assembled position; and

Fig. 3 is a side view of the holder illustrated in Fig. 1.

As shown in the accompanying drawing a holder for a thermionic valve comprises a body portion 1 moulded from insulating material and formed with a series of axial prong receiving bores 2 in which are positioned metal contacts having prong-engaging portions (not shown) adapted to make electrical engagement with the inserted prongs of a valve. As shown the pin receiving face 4 of the holder is of generally elliptical shape including laterally projecting lobes 5. Adjacent to the opposite faces, the body 1 is formed with laterally projecting portions 6 located at distances spaced circumferentially of the lobes 5, whereby the latter and the portion 6 form abutments spaced axially of the body.

The contacts 3 in the prong receiving bores 2 are formed with integral extensions including portions 7 extending laterally through slots 8 in the holder and inclined towards the prong receiving face 4, and flat portions 9 at the free ends which extend to a position between the planes of the oppositely disposed faces of the abutments 5, 6.

The holder is adapted to be assembled with a panel or support 10 having electrical circuit connections 11 printed or otherwise mounted or formed on at least one face and as shown a series of electrically conducting portions 11 are provided extending to adjacent the edge of the aperture 12 in which the holder is arranged.

The holder is assembled with the panel by inserting its prong receiving face 4 into the aperture 12 from the underside of the panel, as indicated in Fig. 1. It will be noted that the shape of the aperture 12 corresponds to that of the face 4 of the holder so as to permit its insertion into the position shown in Fig. 1. As the thickness of the panel will be less than the distance between the abutments 5, 6 when the holder is inserted to bring the abutment 6 into contact with the underface of the panel, the lobes 5 will be spaced slightly above the adjacent surface of the panel. The holder is then given a predetermined rotary movement in a clockwise direction to move the lobes 5 to a position wherein they overlap the edges of the panel as indicated in Fig. 2, and in this position the holder is retained in assembly by the abutment 6 and lobes 5 including oppositely disposed surfaces of the panel. During this rotary movement the free ends 9 of the conducting elements will make wiping engagement over the adjacent underface of the panel and at the completion of the rotary movement they will make frictional and electrical engagement with the respective conducting portions 11 as indicated in Fig. 2.

To limit the rotary movement of the holder to the predetermined amount to position the elements 9 in engagement with the portions 11, the face 4 of the holder is provided with a laterally projecting rib or the like 13 adapted to extend into a cut-away portion 14 at one side of the aperture 12, the rib being adapted to engage the end wall of the cut-away portion 14 to limit the rotary movement of the holder to the desired predetermined amount.

The conducting elements of the holder are formed of sheet metal and accordingly the portion 7 will be relatively resilient to effect a resilient wiping action over the face of the panel and make efficient engagement with conducting portions 11. Further the flat free ends 9 of the elements preferably extend in a plane parallel to that of the underface of the panel so that a relatively large contact area is provided between ends 9 and the portions 11.

It will be noted that the holder is readily assembled in correct position on the panel as it is only necessary to rotate the holder until the rib or stop member 13 prevents further rotary movement, and in this position the free ends 9 of the conducting elements will be automatically in register with the respective portions 11.

The resiliency of the portion 7 and the conducting elements may be such as to provide the necessary electrical contact with the portions 11, but if desired a permanent connection may be provided by soldering after the holder has been assembled in position.

If desired the holder may also be provided with a central tubular rivet serving as an earthing terminal and formed with extensions for engagement with an appropriate part of the electrical circuit connections on the panel.

I claim:

In combination, a panel of insulating material having a non-circular aperture therein, said panel having upper and lower surfaces, printed wires disposed on said lower surface of said panel having end portions positioned near said aperture in predetermined relation to the wall surrounding said aperture, a holder for a thermionic valve rotatably mounted in said aperture, said holder including a body portion of insulating material disposed in said aperture, said body portion being of one piece and having integral abutment elements projecting laterally beyond the sides of said body at upper and lower ends thereof, said body carrying contact members having resilient terminal portions extending from adjacent said lower end of said body laterally beyond said sides of said body and toward said upper end of said body, said abutment elements at said upper end of said body passing through said aperture of said panel from said lower surface thereof, said last-mentioned abutment elements overlapping said upper surface of said panel on rotation of said holder and said abutment elements at said lower end of said body overlapping said lower surface of said panel to maintain said holder in assembly with said panel, and said terminal portions being located in predetermined relation to the said body to make tensional electrical connections with said printed wires when said holder has been rotated into final assembled position with said panel.

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