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TUBE HOLDER

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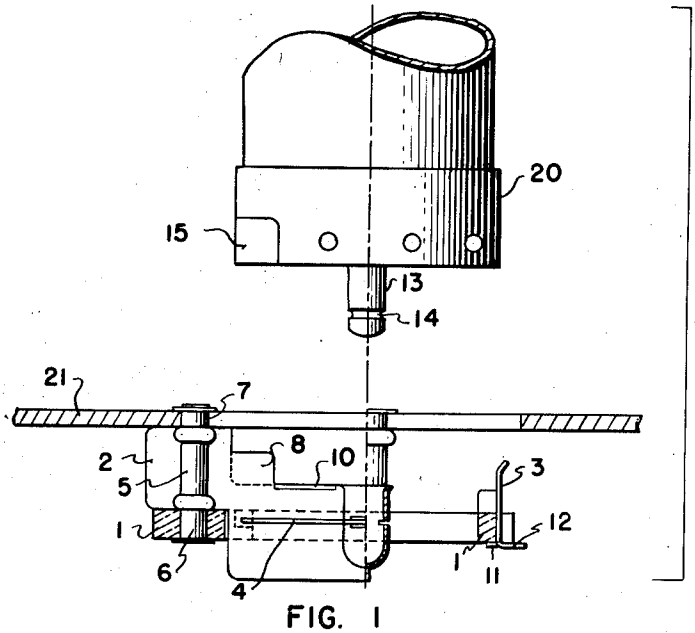


FIG. 1

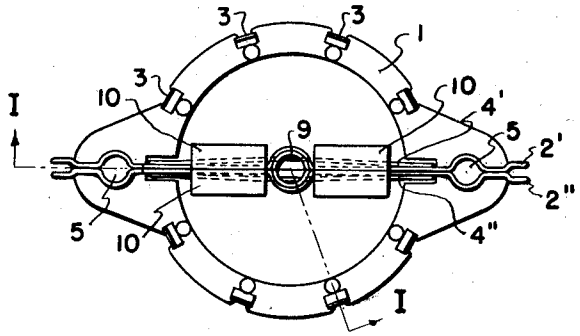


FIG. 2

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TUBE HOLDER

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7 Claims. (Cl. 173—328)

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This invention relates to tube holders provided with screening plates, and particularly to holders for tubes having a grooved centering pin.

The arrangement of screenings in tube holders is known in many forms of construction. Thus, for example, it has been proposed to provide screens cooperating with the internal screening of a tube placed in the holder, the tube holder being generally constituted by an insulating body, in which the contact springs are housed in recesses. This insulating contact carrier generally has a pair of lugs provided with apertures for receiving the fastening bolts or the like by means of which the holder can be secured to a mounting plate.

Apart from the comparatively complicated form of such insulating contact carriers, owing to which the manufacture is costly and stresses in the material are frequently liable to occur, so that the sturdiness is decreased, an accumulation of dust may be formed in the recesses and moisture may deposit, to which cracking contacts and insulation difficulties are due. In addition, it is not simple to provide an effective screening, because this entails a still more complicated form of the insulating contact carrier.

These difficulties are obviated by the use of a construction according to the invention, in which with a tube holder for a tube having a grooved centering pin, the holder is constituted by a primarily annular insulating body which carries contact springs and has a screen diametrically secured to it. This screen serves for holding, centering and insuring the correct insertion of the tube in the tube holder and in addition for fastening the holder to a mounting plate.

The screen is preferably constituted by two small plates having their end portions welded together, each plate being provided with semi-cylindrical recesses so that when welded together a double flanged tube is produced at each of the two ends of the screen thus formed and between these ends a central sleeve is also formed to receive the centering pin of the tube. The screen is joined by means of each of the double flanged tubes to the contact-carrying body and to the mounting plate. The central sleeve is provided with a spring device which engages in the groove of the centering pin of the tube. The bottom of the screen is formed asymmetrically in such manner that a location lug is formed on one side thereof, said lug safeguarding the correct insertion of a tube in the holder. In this case, the tube is provided with a corresponding cut at the periphery of the tube-wall. In order further to improve

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the screening four projecting parts may be bent over at right angles at the bottom of the asymmetrical cut of the screen, with the result that auxiliary screens are formed which are located in the plane of the annular contact carrier.

The spring device which ensures that the tube is held in the holder is constituted by two straight pieces of steel wire, which at the ends engage in recesses of the insulating contact carrier and pass through slits of the sleeve into which the centering pin of the tube is introduced. On insertion of the tube in the holder the pieces of steel wire are caused to engage a circular groove of the centering pin resiliently, with the result that the tube is fixed in the holder.

The contact springs may have the shape of blade springs which are gripped in slots of the contact carrier and are fixed in these slots, for example by the bending over of a pair of tags, one of the tags also serving for the attachment by soldering of a lead-in wire. The springs may be so shaped as to cooperate with a tube provided with lateral contacts, but as an alternative these springs may be bent so as to permit of a tube having straight contact pins sealed in its bottom being inserted in the holder.

The contact-carrying body may be made of most of the well-known insulating substances, such as synthetic resin, ceramic material or the like. It is even possible to make the contact-carrying body of glass and in this case the contact pins may, for example, be fastened to sealed-in pins. For this purpose, use is preferably made of moulded glass or glass made of glass powder in such manner as to comprise fine cavities to the extent of at least 5%.

In order that the invention may be clearly understood and readily carried into effect, it will now be described more fully with reference to the accompanying drawing, in which

Fig. 1 shows a tube holder according to the invention and diagrammatically illustrates part of a tube in position before attachment to the holder; and

Fig. 2 is a plan view of the tube holder.

Referring to Fig. 1, 1 designates the insulating annular body to which contacts 3 are fastened. The ring contains a diametrically arranged screen 2 according to the invention, constituted by two metal plates 2', 2'' which are welded so as to lie in contact and each of which comprises three semi-cylindrical portions which jointly form double flanged bushes 5 and a central sleeve 9. The bottoms 6 of the flanged bushes 5 are introduced into the apertures of the lugs of the in-

sulating contact carrier 1 and are flanged, the top ends 7 of the flanged bushes 5 being subsequently secured by flanging to a mounting plate #21. The sleeve 9, which in this case is arranged centrally but which may be arranged asymmetrically, comprises two cuts through which pass the steel springs 4', 4''. The ends of these springs engage in recesses of the contact carrier 1.

The tube to be mounted in the holder is designated by 20. It carries a centering pin 13 with a groove 14. On introduction of the tube into the holder the centering pin of the tube slides into the sleeve 9, the springs 4', 4'' being pressed apart until they are caused to engage the groove 14 of this central pin and thus fix the tube in the holder. The correct insertion of the tube in the holder is effected by means of a location lug 8 of the screen 2 which engages a corresponding cut 15 in the sidewall and the bottom of the tube. Parts 10 of screen 2 are bent over at right angles at the bottom of the cut, so that they are caused to be located in the plane of the insulating contact carrier 1 and this provides an additional improvement in the screening. It is obvious that this construction avoids formation of dust collecting chambers. The springs 3 are secured to the insulating body by bent-over tags 11 and the tags 12 serve for the attachment of the lead-in wires by soldering.

What we claim is:

1. A holder for an electronic tube having a longitudinally extending locating pin, said holder being adapted to be secured to a base having recesses and comprising a substantially annular insulating body having diametrically opposed radially extending slots in the inner wall thereof and having diametrically opposed longitudinal recesses, and a metallic member comprising two metallic plates each having three semi-cylindrical recesses and joined together with said recesses of each plate in opposition to form three tubular portions, each of the outer two of said tubular portions having side walls extending longitudinally and being provided with flanges on each end, one flange of each of which engages one of said recesses in said annular member and the other said flange of each being adapted to engage a recess in said base, two spring members engaged diametrically in said slots, the third said tubular portion having side walls extending longitudinally, said third tubular portion side walls having two diametrically opposed transverse slots through each of which passes one said spring member, said third tubular portion being adapted to receive said locating pin and said spring members being adapted to engage said locating pin within said third tubular portion.

2. A holder for an electronic tube having a portion with a longitudinal indentation and having a longitudinally extending locating pin, said holder being adapted to be secured to a base having recesses and comprising a substantially annular insulating body having diametrically opposed radially extending slots in the inner wall thereof and having diametrically opposed longitudinal recesses, and a metallic member comprising two metallic plates each having three semi-cylindrical recesses and joined together with said recesses of each plate in opposition to form three tubular portions, each of the outer two of said tubular portions having side walls extending longitudinally and being provided with flanges on each end, one flange of each of which engages one said recess in said annular

member and the other said flange of each being adapted to engage one of said recesses in said base, two spring members engaged diametrically in said slots, the third said tubular portion having side walls extending longitudinally, said third tubular portion walls having two diametrically opposed transverse slots through each of which passes one said spring member, said third tubular portion being adapted to receive said locating pin and said spring members being adapted to engage said locating pin within said third tubular portion, one said metallic plate having a portion extending substantially in a longitudinal plane and adapted to engage said indentation in said electronic tube portion.

3. A holder for an electronic tube having a portion with a longitudinal indentation and having a longitudinally extending locating pin, said holder being adapted to be secured to a base having recesses and comprising a substantially annular insulating body having diametrically opposed radially extending slots in the inner wall thereof and having diametrically opposed longitudinal recesses, and a metallic member comprising two metallic plates each having shielding tags extending substantially in a transverse plane and each having three semi-cylindrical recesses and joined together with said recesses of each plate in opposition to form three tubular portions, each of the outer two of said tubular portions having side walls extending longitudinally and being provided with flanges on each end, one flange of each of which engages one said recess in said annular member and the other said flange of each being adapted to engage a recess in said base, two spring members engaged diametrically in said slots, the third said tubular portion having side walls extending longitudinally, said third tubular portion side walls having two diametrically opposed transverse slots through each of which passes one said spring member, said third tubular portion being adapted to receive said locating pin and said spring members being adapted to engage said locating pin within said third tubular portion, one said metallic plate having a portion extending substantially in a longitudinal plane and adapted to engage said indentation in said electronic tube portion.

4. A holder for an electronic tube having a centering pin and contact members, said holder being adapted to be secured to a base and having a substantially ring-shaped insulating body with contact receiving portions adapted to receive the contact members of said tube, said holder comprising an integral member for screening the lead-in connections of said tube from each other, for attaching the holder to said base, and for holding the electronic tube, said screening member being arranged diametrically across the insulating body and comprising two metallic plates each having three semi-cylindrical recesses which joined together with said recesses of each plate in opposition form two outer and one intermediate tubular portions, the intermediate tubular portion being adapted to hold the central pin of said electronic tube and the two outer tubular portions being each provided with a flange at their top and bottom ends, one of said flanges of each tubular portion being adapted to engage a recess in said base, and the other said flange being adapted to engage a recess in said insulating body.

5. A holder for an electronic tube having a centering pin with a retaining groove therein and

contact members, said holder being adapted to be secured to a base and having a substantially ring-shaped insulating body with contact receiving portions adapted to receive the contact members of said tube, said holder comprising an integral member for screening the lead-in connections of said tube from each other, for attaching the holder to said base, and for holding the electronic tube after insertion into the holder, said screening member being arranged diametrically across the insulating body and comprising two metallic plates each having three semi-cylindrical recesses which joined together with said recesses of each plate in opposition form two outer and one intermediate tubular portions, the intermediate tubular portion having transverse slots in its wall, spring means arranged on said insulating body and extending diametrically across the same for engagement with said slots and adapted to be received in the groove of the centering pin of the electronic tube for holding the latter, the two outer tubular portions of the screening member being each provided with a flange at their top and bottom ends, one of said flanges of each tubular portion being adapted to engage a recess in said base, and the other said flange being adapted to engage a recess in said insulating body.

6. A holder for an electronic tube having a centering pin with a retaining groove therein and contact members, said holder being adapted to be secured to a base and having a substantially ring-shaped insulating body with contact receiving portions adapted to receive the contact members of said tube, said holder comprising an integral member for screening the lead-in connections of said tube from each other, for attaching the holder to said base, and for holding the electronic tube after insertion into the holder, said screening member being arranged diametrically across the insulating body and comprising two metallic plates each having three semi-cylindrical recesses which joined together with said recesses of each plate in opposition form two outer and one intermediate tubular portions, the intermediate tubular portion having transverse slots in its wall, spring means arranged on said insulating body and extending diametrically across the same for engagement with said slots and adapted to be received in the groove of the centering pin of the electronic tube for holding the latter, the two outer tubular portions of the screening member being each provided with a flange at their top and bottom ends, one of said flanges of each tubular portion being adapted to engage a recess in said base, and the other said flange being adapted to engage a recess in said insulating body, said screening member having a part of each metal plate bent over at right angles so as to lie in the plane of the insulating body, whereby additional screening is provided.

7. A holder for an electronic tube having a centering pin with a retaining groove therein and contact members, said holder being adapted to be secured to a base and having a substantially ring-shaped insulating body with contact receiving portions adapted to receive the contact members of said tube, said holder comprising an integral member for screening the lead-in connections of said tube from each other, for attaching the holder to said base, for correct insertion of the tube in the holder and for holding the tube after insertion, said screening member being arranged diametrically across the insulating body and comprising two metallic plates each having three semi-cylindrical recesses which joined together with said recesses of each plate in opposition form two outer and one intermediate tubular portions, the intermediate tubular portion having transverse slots in its wall, spring means arranged on said insulating body and extending diametrically across the same for engagement with said slots and adapted to be received in the groove of the centering pin of the electronic tube for holding the latter, the two outer tubular portions of the screening member being each provided with a flange at their top and bottom ends, one of said flanges of each tubular portion being adapted to engage a recess in said base, and the other said flange being adapted to engage a recess in said insulating body, said screening member having formed thereon a locating lug and said electronic tube having a cut near the bottom thereof corresponding to said lug for engagement therewith and for correct insertion of the tube into the holder.

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