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2,354,748

MOUNTING DEVICE

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Fig. 1.

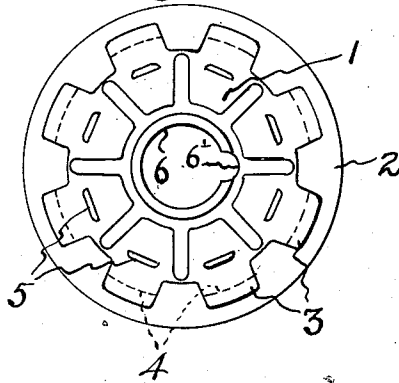


Fig. 2.

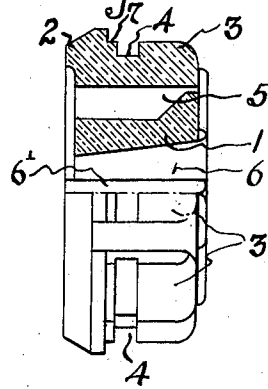


Fig. 3.

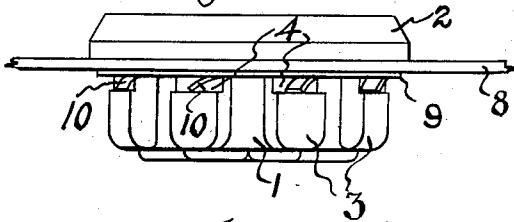


Fig. 4.

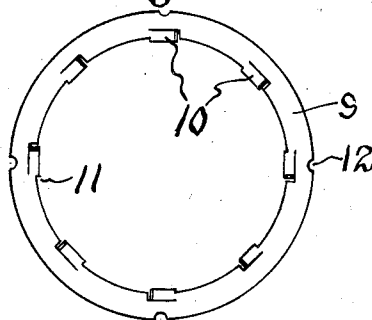


Fig. 5.

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UNITED STATES PATENT OFFICE

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MOUNTING DEVICE

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5 Claims. (Cl. 173—339)

This invention relates to improvements in mounting means by which mechanical, electrical and similar apparatus may be mounted on and secured to supporting bases.

The main object of this invention is to provide a simplified attaching means by which, by simple manipulations, mechanical and electrical devices can be attached to their supports and demounted therefrom with facility.

A further object of the invention is to provide an arrangement which is easily locked against loosening or undesired removal by reason of vibration.

The detailed objects of this invention will be apparent from the following description of a specific embodiment thereof.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, as will be described in detail below.

In the accompanying drawing,

Figure 1 is a bottom plan view of the insulating body portion of a vacuum tube socket;

Figure 2 is a side elevational view showing a portion in cross section;

Figure 3 is a side elevational view of the socket mounted and locked upon a support in accordance with the subject matter of this invention;

Figure 4 is a top plan view of the locking ring; and

Figure 5 is an edge elevational view thereof.

As the description of the subject matter of this invention proceeds it will become apparent that the invention is of such a nature that it may be employed for mounting all kinds of devices upon supporting chassis, panels and the like. However, for the purposes of disclosure the description will be limited to an application of the subject matter of the invention to a radio tube socket illustrating how it may be mounted and locked upon a chassis.

The socket comprises a suitably shaped body 1 of insulating material which, as is frequently the case in this art, may be a ceramic. As illustrated the body is generally cylindrical in form, with a circular passage 6 through the center thereof in communication with a longitudinally extending notch 6' commonly provided in such devices for aligning a radio tube for application to the socket in correct position. In the structure illustrated there are two portions of generally different diameters, forming a head or face 2 representing the side from which the radio socket is mounted. The portion of smaller diameter is longitudinally grooved or fluted to provide a series

of radial extensions 3 which are not cut in circumferential alignment to form an interrupted annular groove 4, as is clearly apparent from the various figures. Where the portions of different diameter come together and adjacent the groove 4 there is formed a seat 7 by means of which the socket rests in a circular aperture in the chassis or other support 8. The axial width of the seat 7 is substantially equal to the thickness of the chassis plate 8, but as will appear hereinafter, the locking ring is of such construction that a fairly wide range of variation in the thickness of the supporting plate 8 may be accommodated.

Extending through the insulating body are a series of axial passages 5 in which the socket contacts, not shown, are mounted. The nature, construction and function of these contacts form no part of this invention, and further reference to them therefore seems unnecessary.

The locking ring comprises an annulus 9 of suitable material such as for example phosphor bronze, which has struck out therefrom at equidistant circumferential points, a series of spring fingers 10 which are longitudinally curved as is clear from the several figures. The number of these spring fingers corresponds to the number of longitudinal ribs 3 formed on the body of the socket. As illustrated the transverse width of these fingers and their position on the shaft is such that they project radially inwardly with respect to the annulus a short distance forming right angle shoulders as indicated at 11. The ring 9 is preferably dished, by which is meant that the plane of the band forming the ring may be inclined upwardly to form what may be termed a very shallow truncated cone, so that any pressure applied to the face of the ring will tend to flatten it out against the resiliency and resistance of the material thereof.

In mounting the socket on the chassis the fluted hub portion is passed through a similarly shaped aperture in the plate, which aperture has a diameter approximately equal to the diameter of the seat 7, so that the flanged head 2 rests against a face of the plate 8. The ring 9 is then slipped over the fluted hub with the ears 10 aligned with the longitudinal flutes formed by the ribs 3 until the ring lies against the opposite face of the plate 8 as appears in Figure 3. The ring is then given a rotation such that the fingers 11 are forced into the interrupted groove sections 4 to a position shown in Figure 3. The direction of rotation is opposite to the direction in which the longitudinally curved fingers 10 extend so that they will ride easily into the interrupted

slot sections 4 and bite into the opposed walls of the slots to resist any reverse rotation. In the case where the ring is slightly dished it will be forced back towards a flat position to increase the pressure of the ring between the plate 8 and the socket. The peripheral notches 12 provide additional points for pins which will bite into the adjacent face of the plate 8 to further resist loosening movement. It is unnecessary to disclose here the details of the various forms which devices or tools may take to aid in moving the ring into locking position. It may be indicated, however, that a hollow tool similar in some respects to a socket wrench may be provided with suitable projections to engage the fingers and cause the ring to rotate into locking position. It will be a sort of spinner wrench which may take different forms, and it might for example be constructed to cooperate with the notches 12 to cause this movement. However, the nature and details of construction of such a tool form no part of this invention.

From the above description it will be seen that the subject matter of the invention is not limited in its application as illustrated to radio tube sockets but may be applied for the purpose of mounting many different kinds of devices on their supports. It is apparent that the aperture in the plate 8 will correspond to the shape of the device, as will the ring, and that in its most useful application these parts will all be of circular form. It may also be noted that it is not strictly necessary that the spring fingers 10 be longitudinally curved in an upward direction since they may take other positions and forms while acting in a manner generally similar to the type illustrated for facilitating the movement of the locking ring into locking position and resisting, but not absolutely preventing, movement in the opposite direction to dismount the parts when desired.

Those skilled in the art will readily appreciate therefore that the subject matter of this invention may be embodied in other physical forms, and I do not, therefore, desire to be strictly limited to the exact form illustrated, but rather by the scope of the claims granted me.

What is claimed is:

1. A structural combination as described comprising a device to be mounted on a support having a head and a hub, an interrupted annular groove formed on said hub, a support engaging said head and a locking ring having a plurality of cantilever spring fingers engaging the sections of said groove and lying against the side of said support opposite to said head.

2. In the combination of claim 1, said fingers being longitudinally curved so that an edge of each thereof bitingly engages one wall of the associated groove section.

3. The combination as described comprising a socket member having a flanged head and an integral hub provided with longitudinal exterior ribs, said ribs being grooved adjacent said head to form an interrupted channel about said hub, a supporting plate for said socket through which the hub projects and lying against said head, and a continuous locking ring surrounding said hub and having a plurality of integral cantilever springs lying respectively in the grooves of said ribs.

4. In the combination of claim 3, said spring fingers projecting radially inwardly of the ring to provide notches through which said ribs pass during mounting of the ring.

5. In the combination of claim 3, said spring fingers projecting radially inwardly of the ring to provide notches through which said ribs pass during mounting of the ring and said spring fingers being longitudinally curved so that their end edges bite into the groove walls.

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