June 6, 1939. A. J. SCHMITT 2,161,487

RADIO SOCKET

Filed March 19, 1938

Fig. 1

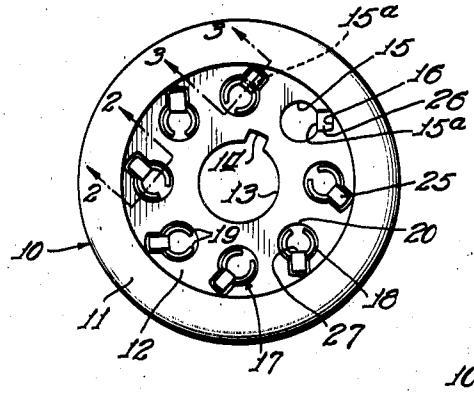


Fig. 3

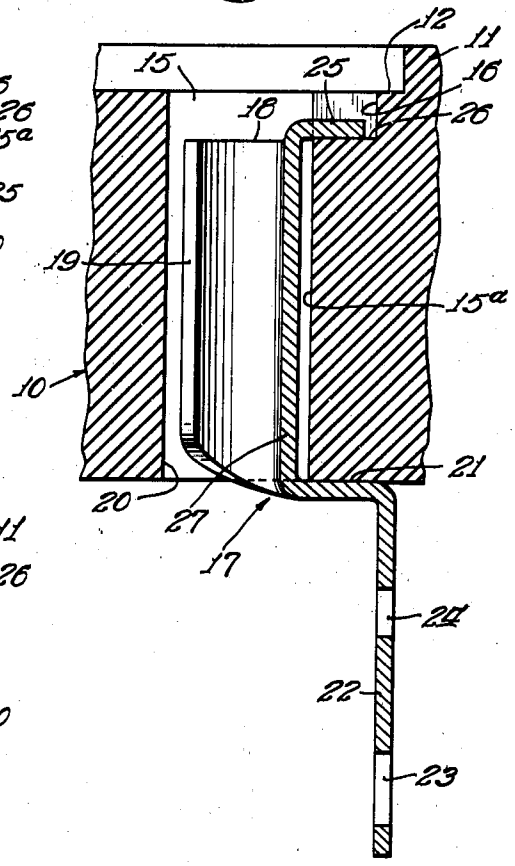


Fig. 2

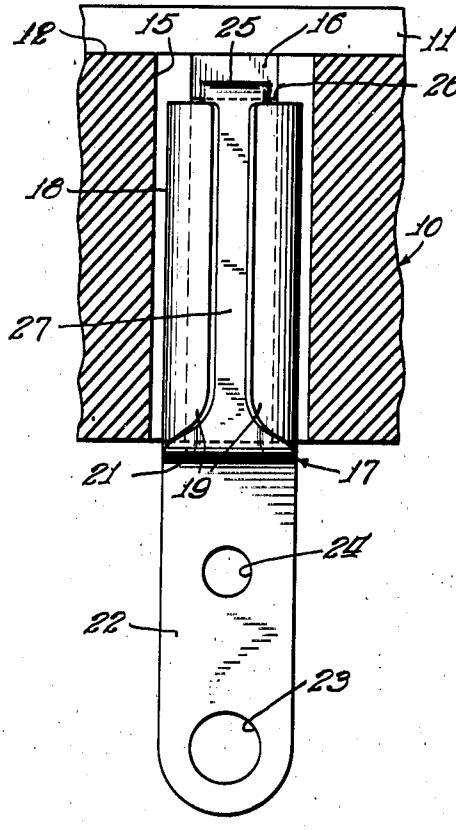
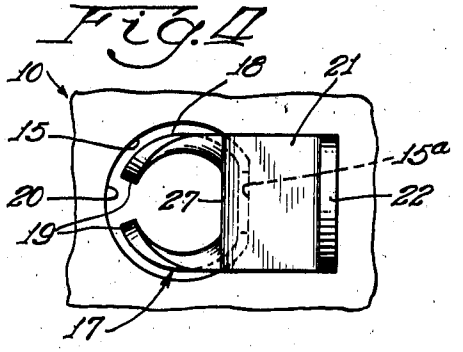


Fig. 4



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2,161,487

RADIO SOCKET

Arthur J. Schmitt, Chicago, Ill.

Application March 19, 1938, Serial No. 196,891

1 Claim. (Cl. 173—328)

This invention relates to radio sockets and more particularly such as are used in radio apparatus for holding electronic tubes having prongs for the electrodes.

One of the objects of the invention is to provide an economical and simplified construction which is at the same time highly efficient, and particularly in which an electron tube having a large number of electrodes or prongs, for example as many as eight, may be carried on a socket no larger than a socket for say a conventional four-prong tube, while at the same time security is provided against short circuiting between the circuits of the various prongs, even at relatively high voltages.

Other objects and advantages will be readily apparent from the following description, taken together with the accompanying drawing, in which—

Figure 1 is a plan view of a socket following the present invention;

Figure 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Fig. 1;

Figure 3 is a similar view but taken on the line 3—3 of Fig. 1; and

Figure 4 is a bottom view of the structure of Fig. 3.

Referring in detail to the illustrative construction shown in the drawing, the embodiment here shown comprises a body 10 for the socket, preferably of molded insulating material such as Bakelite and of cylindrical formation. The outside diameter of the body is very little, if any, over an inch in actual practice, and it will be understood that the figures of the drawing are greatly exaggerated for clearness of description.

The upper part of the body 10 desirably has an annular peripheral ridge 11 thereabout, which encircles a central slightly depressed circular area 12, as is customary in sockets for this purpose. Centrally of the body 10 there may be the usual central axial passage 13 for a guide pin on the vacuum tube (not shown), the passage 13 and the guide pin having a keyed engagement as by a key-way 14 in the passage 13 and a similar rib on the guide pin which determines the predetermined relative rotative position of the tube and socket.

Arranged within the area 12 is a plurality of other axial bore-like openings 15 in the body for the individual electrode prongs of the tube, and in this instance there are eight such openings 15 for such prongs, all arranged in an annular series within the circular space 12 in a circle having a diameter of substantially less than one inch in actual practice and open at the upper end of the body. The openings 15 desirably have a cylindrical portion for the reception of the prong itself, this portion being of approximately three-sixteeths of an inch in diameter. In addition to the cylindrical portion of the openings 15, also in accordance with the present invention, each has a transversely slotted or laterally extended portion 16 of substantially less width than the diameter of the cylindrical portion which communicates with the cylindrical portion of the opening 15 at the upper part of the opening. In accordance with the present invention the slot 16 for each of the openings 15 is directed on an incline to a radius of the body passing through the center of the cylindrical portion of the opening 15. Each slot is arranged at approximately an angle of forty-five degrees to its respective radius and the slots are all arranged on the same side of each radius, that is, in this case on the right hand side of each radius, assuming one is looking from the center of the body outwardly along each radius. Thus a greater number of the openings 15 so formed with transversely slotted extensions may be arranged in the area 12 than would be possible if the slots 16 extended either in a direction of a radius or in a direction perpendicular to a radius. At the same time there is maintained a maximum degree of spacing between the openings 15 so as to provide maximum safeguard against short circuiting across the contacts or terminals.

Associated with each of the openings 15 is a one-piece metal contact member 17 which has a split sleeve or somewhat cylindrical portion 18 received in the cylindrical part of the opening 15, and extending substantially throughout the vertical length of this opening, it being understood that the body 10 being relatively thick in proportion to its diameter thus provides a support or backing for lateral pressure exerted by the prong of the tube as it is received between the wings 19 of the split sleeve 18, and forces these resilient wings outwardly. Flexure of the wings under the influence of the prong being limited by the wall 20 of the opening 15, this provides controlled resilience, so to speak, which guards against the resilient portions of the contact being given at any time a permanent set which would destroy their useful resilience. It will be understood that the formation of the split cylinder 18 is such initially that its diameter is slightly less than the diameter of the cylindrical part of the opening to permit this flexure under the influence of the prong and to provide a good low resistance elec-

trical path between prong and contact member.

Intermediately of its length the contact member 17 has formed therein a shoulder 21 which engages the lower end of the body 10 and prevents upward movement of the contact member in the opening. Below the shoulder the contact is continued downwardly in the soldering connector portion 22 which may be provided with the usual solder holes 23 and 24.

Spaced above the shoulder 21 the contact member is provided with another portion 25 which is received in the slot 16 and which in this instance abuts a shoulder 26 in the slot. This relation also substantially fixes the relative rotative position of body and contact.

Either one of the shoulder portions 21 or 25 of the contact member may be preformed. For example, the shoulder portion 21 may be preformed and the contact inserted from the bottom with the portion 25 initially parallel with the axis of the split sleeve 18, and thereafter bent over to enter the slot 16. Or the portion 25 may be initially bent as shown, while the portion 21 is parallel with the axis of the split sleeve portion and the contact inserted from the top, the shoulder portion 21 being thereafter formed. In the latter case the shoulder portion 21 might be formed by hand, in which event the shoulder need not be as sharp and precise as here shown, and any axial abutment which would prevent upward movement of the contact in the opening being suitable.

It will be readily seen that in either case, when first formed in the flat, the portions 21, 22 and 25 of the contact member are flat, longitudinal extensions of the somewhat flat rear wall 27 of the contact member which desirably also disposes the tails 22 of the contact members in a plane inclined to a radius of its body, i. e., parallel to the somewhat flat wall 15a of the socket, so as to enhance the spaces between them.

Such changes may be made as fall within the scope of the following claim without departing from the invention.

Having described my invention, I claim:

In a radio socket embodying a molded insulating body of cylindrical formation having an annular series of parallel bore-like openings passing axially therethrough, the combination wherein each opening has a prong receiving portion open at the upper end of the body and has a slot substantially narrower in diameter than the said prong receiving portion extending laterally therefrom in a direction inclined at approximately a forty-five degree angle with respect to a radius of the body passing through the center of the prong receiving portion, each slot extending to one side only and to the same side of its respective radius as every other said slot looking outwardly of the socket along said radius, and wherein a one-piece sheet metal contact member having a split sleeve portion is received in said prong receiving portion of each opening, said contact member being bent to form a shoulder thereon intermediately of the length thereof for engaging the lower end of the body to prevent upward withdrawal of the member from the body and said member having a laterally extended portion received in said slot, there being a shoulder in the slot spaced intermedially of the upper and lower end of the body engaging the laterally extended portion of the member to prevent downward displacement of the member in the body.

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