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C. E. KILGOUR

1,992,432

RADIO TUBE SOCKET

Filed Jan. 18, 1929

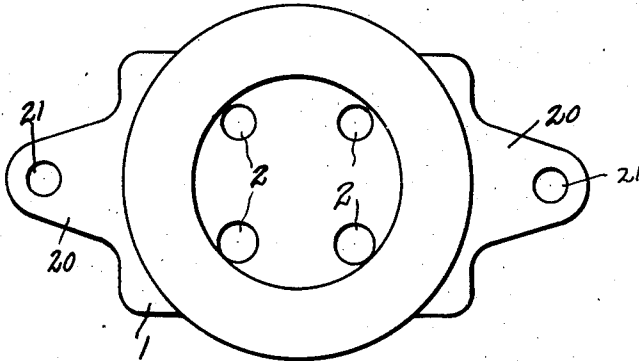


FIG. 1.

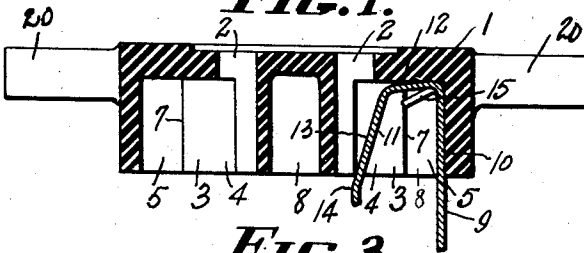


FIG. 3.

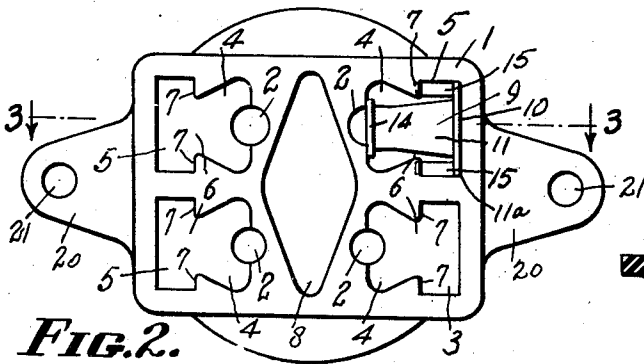


FIG. 2.

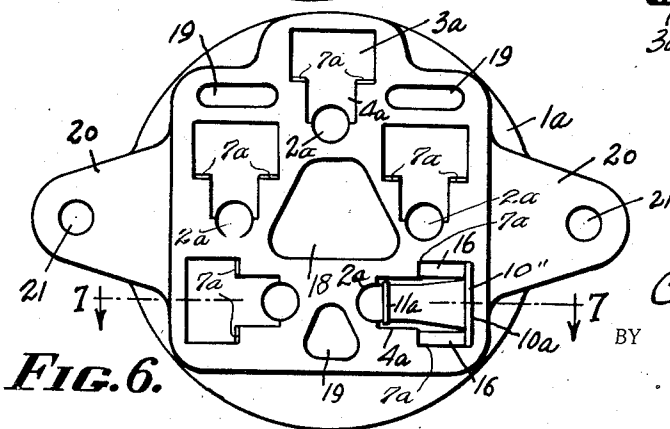


FIG. 6.

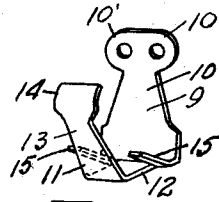


FIG. 4.

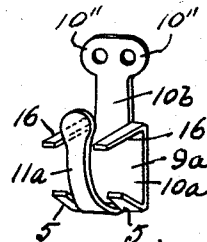


FIG. 5.

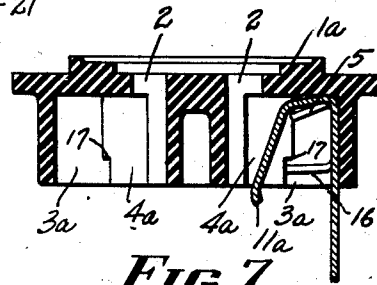


FIG. 7.

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UNITED STATES PATENT OFFICE

1,992,432

RADIO TUBE SOCKET

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5 Claims. (Cl. 173—328)

My invention relates to improvements in tube sockets and particularly to improvements which not only make a socket of low inter-terminal capacity but also one which may be constructed with a minimum number of essential parts and which reduces the cost and simplifies the problem of manufacture.

In the art there have been many developments in tube sockets in which the capacity is low between terminals but such developments have tended to increase the difficulty and expense of manufacture. It is the object of my invention to provide a socket of low capacity in which the contact clips are supported within depressions formed in a supporting base without the necessity of any attaching screws. It is further my object to provide a socket in which the clips when inserted within the depressions automatically lock themselves in position.

The above and other objects to which reference will be made in the ensuing disclosure I accomplish by that certain combination and arrangement of parts of which I have shown several preferred modifications illustrating the mechanical and structural principle of my invention.

Referring to the drawing:

Figure 1 is a top plan of one of the sockets.

Figure 2 is a bottom plan of the same with one of the clips in place.

Figure 3 is a vertical cross section on the line 3—3 of Figure 2.

Figure 4 is a detail perspective view of the clip.

Figure 5 is a similar view of a modified clip.

Figure 6 is a bottom plan of a modified socket.

Figure 7 is a vertical cross section of the same.

The base or socket 1 shown in Figures 1 to 3, inclusive, has four apertures 2 for four prongs of a tube or like appliance, which apertures 2 extend entirely through the base 1. Associated with each aperture 2 is a recess 3, opening out through the bottom of the base 1 and extending most of the way to the top of the base. Each of these recesses 3 comprises a portion 4 adjoining the aperture 2, where its end is wider than the aperture 2, and from which end its sides converge to adjoin a second portion 5, wider than the adjoining end of portion 4, and being, except for the opening 6 to portion 4, a rectangle with its longer side opposite the opening 6. This leaves shoulders 7 at opposite sides of the opening 6, next to respective lateral ends of this rectangular second portion 5. The recess 8 at the middle is merely for making the socket lighter.

The clip 9 shown in Fig. 4 comprises a main body part 10, the top of which is formed with

apertured ears 10' to which the connecting wires may be soldered, from which it widens down to its bottom. At the bottom of this body part 10, a tongue 11 extends at right angles thereto at 12 and then slants up along the face thereof at 13, with a terminal part 14 curved in toward the body part 10. At opposite sides of the tongue 11 are prongs 15 slanting upwardly and being of such length that when the clip 9 is inserted, bottom first, into one of the recesses 3, these prongs 15 will fit in the ends of the second portion 5 of the recess, wedging their ends against the respective shoulders 7 if the clip starts to withdraw from the recess 3. In this position, the clip 9 extends its tongue 11 out through the opening 6 into the first portions 4 of the recess 3, across the aperture 2 to be pressed back by the prong of an appliance inserted through the aperture 2 from the tops of the base or socket 1 and engaging with the curved terminal part 14 of the clip tongue 11, thus making electrical connection which is maintained by the resiliency of the tongue 11 and the rigid support of the clip body 10 in the recess 3 by the opposite long side of the recess portion 5 and the gouging retention engagement of the clip prongs 15 with shoulders 7.

This gouging engagement affords the same effect as if there had been offsets formed on the shoulders 7, which would be difficult if not impossible to make, in economical moulding of the sockets. It will be seen that the clip prongs 15 slant toward the direction of withdrawal of the clips 9 from the recesses 3, so that the greater the stress tending to withdraw the clips 9, the more forcibly the prongs 15 gouge into the shoulders 7. This affords a tighter fastening than could be made by preformed offsets in shoulders 7, even if this could be done, practically.

A still firmer fastening of the clip in the recess is afforded with the modified clip 9a of Fig. 5, which has the tongue 11a equivalent to the tongue 11 of the first described clip 9, although somewhat narrower especially in the upper part to make room for two lugs 16 at opposite sides of this upper part. These lugs 16 are bent at a right angle to the clip body part 10a at opposite sides of the base of its neck 10b that carries its apertured connecting ears 10''. These lugs 16 are long enough to engage the shoulders 7 near the entrance to the recess 3, preventing the clip 9a from tilting in recess 3.

The modified socket 1a shown in Figs. 6 and 7 is similar to the first example, except that it has five apertures 2a instead of four, with recesses 3a of slightly different shape, with their portions 4a

adjoining the apertures 2a of width only slightly greater than the width of the apertures. It has recesses 18 and 19 to provide air spaces and lighten the socket. This modified socket 1a is more suitable for the modified clip of Fig. 5 with its narrow tongue 11a. The lugs 16 abut the shoulder 7a, see Fig. 6,—below ledges 17 on these shoulders, as seen in Fig. 7, facing out toward the entrance of the socket, bracing the clips as before described.

This base 1a has five apertures 2a and recesses for them. The sockets 3 or 3a have extensions 20 with holes 21 through which screws may be inserted for mounting them.

In order to explain why the construction illustrated cuts down the capacity of the socket it should be noted that if the bases of the spring clips required screws or the like to mount them on the panel, the bases would have to be correspondingly larger in order to space the screw heads and the tendency for building up capacity would be pronounced unless the spacing were provided for.

It will further be apparent that the only pieces required to make the socket will be the base and one clip for each prong. This furnishes an inexpensive construction and one which may be very quickly and readily assembled.

Modifications in structure which employ a similar constructive principle I consider within the scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A radio tube socket comprising a dielectric base having recesses therein and apertures for the insertion of tube prongs, the recesses being in number one for each aperture, and contact clips formed with projecting tongues to gouge into the walls of the recesses and retain said clips therein, and means extended from said clips to prevent the rocking of the clips within the recesses.

2. In combination with a radio tube socket having an aperture therein for the insertion of a tube prong downwardly thereinto and having a recess for retaining a contact clip, a contact clip having a base portion with tongues extending diagonally downwardly therefrom when placed in said recess and having an attaching lug formed integrally therewith, said clip also having a resilient contact piece for contacting with the tube prong, and said recess having shoulders against

which said tongues bear to retain said clip within the recess and said clip provided with extensions to bear against said shoulders and prevent the clip from rocking within said recess.

3. A radio tube socket comprising a base with a tube-prong opening therethrough and a recess only partly through and opening outwardly of said base and communicating with said opening, and a clip occupying said recess with a tongue extending across said opening, said clip also having a resilient projection against a wall of the recess, inclined to said wall back from the direction of insertion of the clip into the recess, to allow ready insertion of the clip into the recess, the inclination being of such degree and the length of the projection being such that said projection binds its end against said wall and gouges therein and retains the clip in the recess.

4. A radio tube socket comprising a base with a tube-prong opening therethrough and a recess opening outwardly of said base and communicating laterally with said opening, and a clip occupying said recess with a tongue extending across said opening and having a resilient projection against a surface of a wall of the recess, inclined to said wall back from the direction of insertion of the clip into the recess, to allow ready insertion of the clip into the recess, the inclination being of such degree and the length of the projection being such that said projection binds its end against said wall and gouges therein and retains the clip in the recess, said clip also having an extension engaging with another portion of said wall surface to prevent tilting of said clip in said recess.

5. A radio tube socket comprising a dielectric base having an aperture therethrough for insertion of a prong of an appliance, and having an orifice opening outwardly partly therethrough and communicating with the aperture, and a contact clip having a tongue disposed across the aperture for electrical contact with the inserted prong, said clip also having a resilient prong to contact with and gouge into a wall of the orifice, said clip being insertable into the orifice from the open outer end thereof and said prong of the clip being inclined, in its extent from the clip to the contacted wall in direction opposite to that of insertion of the clip, and at an obtuse angle to the wall, so as to gouge the more tightly into the wall the greater the stress on the clip tending to withdraw it from the orifice.

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