Nov. 22, 1949 S. M. DEL CAMP 2,488,967

ELECTRIC SOCKET

Filed Sept. 18, 1945

Fig. 1.

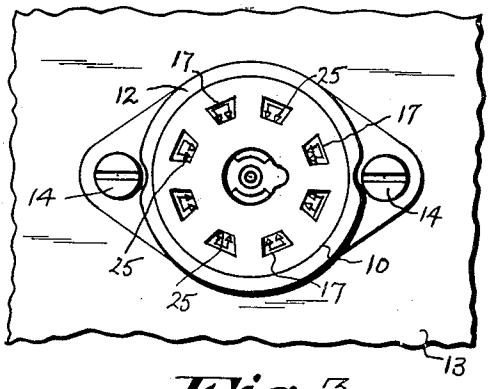


Fig. 2.

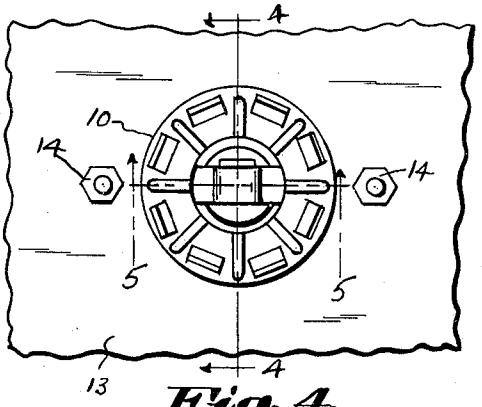


Fig. 3.

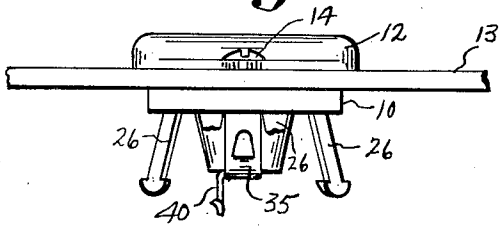


Fig. 4.

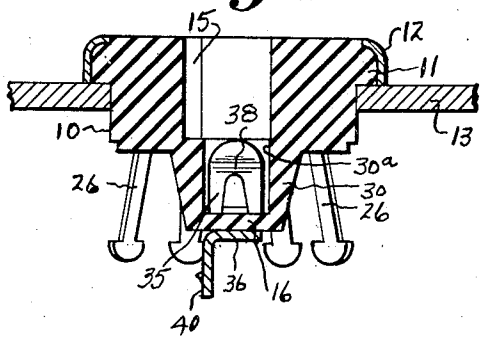


Fig. 5.

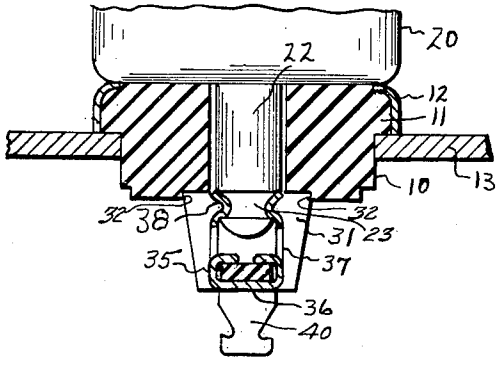


Fig. 6.

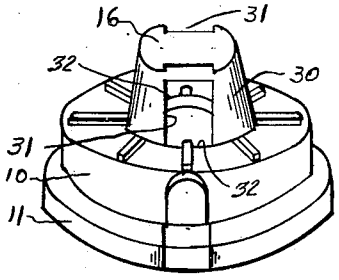
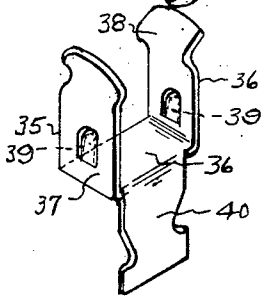


Fig. 7



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UNITED STATES PATENT OFFICE

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ELECTRIC SOCKET

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Application September 18, 1945, Serial No. 616,975

7 Claims. (Cl. 173—328)

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The present invention relates to electric sockets such as those employed for mounting vacuum tubes and the like and aims generally to improve existing sockets of that type.

One of the objects of the invention is the improvement of electric sockets for vacuum tubes and the like of the so-called lock-in type wherein one or more prongs of the tube or electrical device are locked in contacting position in the socket.

A further object of the invention is the improvement of the construction of electric sockets of the lock-in type wherein the distance between the locking point of the tube prong and the top surface of the sockets may be accurately controlled, insuring a proper locking of the tube in the socket.

A further object of the invention is to improve upon the construction of lock-in socket disclosed in my co-pending application Serial No. 609,212, filed August 6, 1945.

The above and further objects of the invention will be readily understood by persons skilled in the art from a consideration of the accompanying drawings and annexed specification illustrating and describing one preferred embodiment thereof.

In the drawings:

Fig. 1 is a top plan view of an electric socket as mounted upon a support, for example the chassis of a radio apparatus;

Fig. 2 is a bottom plan view of a socket embodying my invention;

Fig. 3 is a side elevation of the socket and mounting illustrated in Figs. 1 and 2;

Fig. 4 is an enlarged vertical sectional view of the socket as taken on the line 4—4 of Fig. 2;

Fig. 5 is an enlarged vertical sectional view of the socket and a portion of an attached tube as taken on the line 5—5 of Fig. 2;

Fig. 6 is a detail perspective view of the body portion of the socket as viewed from the underside thereof; and

Fig. 7 is a detail perspective view of the tube prong-locking device.

Referring to the drawings, the socket member preferably comprises a body 10 of suitable insulating material having an annular bead 11 adjacent an upper edge thereof to receive a saddle 12 by means of which the socket may be attached to a support 13 such as a radio chassis plate, as by screw fastenings 14, rivets or the like.

The body of the socket is provided with a central aperture 15 opening through the top thereof but which is bridged by a bottom wall 16 preferably of predetermined thickness. The body 10 is also provided with the usual series of contact-

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receiving openings 17 for the reception of a circular series of circuit prongs of a vacuum tube 20 or other electrical device, as is usual in the art. It will be understood that these circuit prongs of the tube 20 engage in the contact with the socket contacts 25 mounted in the openings 17 as is usual with such devices. The tube 20 may be provided with a central positioning and grounding prong 22 adapted to be positioned in the central opening 15 of the socket, and if desired, this prong 22 may be shaped to fit in an irregularly shaped opening 15, for example, one provided with a keyway 15a (Fig. 1) to receive a key of the prong 22 so as to properly position the tube in the socket and insure proper electrical connection between respective tube circuit prongs and circuit contacts.

The socket contacts 25 may be of any preferred construction to receive and make good electrical contact with the tube circuit prongs, and preferably the contacts have terminal extensions 26 which may be apertured or otherwise shaped to receive a wire or conductor (not shown) of the electrical circuit to which the socket is to be connected.

The bottom 16 of the socket bore 15 is preferably spaced a substantial distance below the top surface of the socket and below the main body portion of the socket with the tube circuit prong-engaging contacts 25. This may be effected by forming the socket body 10 with a central depending tubular extension or post 30 having a central bore 30a in continuation with the bore 15 of the socket body 10. This bore 30a does not extend through the end of the extension 30 so that the bottom wall 16 is thus formed.

The extension 30 is provided with opposed grooves or passages 31 cut in the sides thereof and extending from the bottom 16 for a distance preferably slightly inwardly of the bottom 16. These grooves communicate with the bore 30a and thus present opposed side openings 32 in the extension between the bottom 16 and main body portion 10 of the socket.

The invention provides a tube-prong locking device, preferably for the central positioning prong 22 which may be formed with an annular groove 23 near its free end and preferably the locking device is in the form of a sheet metal fastener member mounted on the bottom 16 and capable of providing an electrical grounding connection for the tube 20.

In the illustrated form of the invention (see Figs. 4, 5 and 7) the tube locking device 35 comprises a fastener of generally U-shaped configu-

ration having a bight or bridge portion 36 and opposed upwardly extending resilient legs or fingers 37 formed with locking faces 38 adapted for snap fastener locking engagement with the prong groove 23. The fastener 35 may be attached to the bottom wall 16 by any suitable means such as by integral legs 39 cut from the legs 37 and clinched over the inner face of the bottom wall 16.

The fastener 35 may be provided with an integral wiring terminal 40 depending from the bridge portion 36 for connection with an electrical conductor (not shown) whereby the tube may be grounded through locking contact between the prong 22 and fastener 35.

A tube 20 or other electric device is mounted in the socket in the usual manner, the particular shape of the positioning prong 22 conforming to the noncircular shape of the bore 15—15a to insure proper electrical engagement of the tube circuit prongs with their respective socket contacts 25. In its full engaged position the end of the positioning prong 22 will be engaged by the locking fingers 37, the portions 38 of which engage in the groove 23 of the prong 22 with a snap fastener action. This securely locks the tube in the space in the socket. Inasmuch as the tube prong 22 is usually of metal and is connected to the base or casing of the tube, the locked engagement between the tube prong and the fastener provides an adequate electrical contact so that the tube may be grounded through the fastener by means of a suitable conductor (not shown) connected to the wiring terminal 40.

From the above it will be apparent that the invention provides a simple, readily manufactured and assembled lock-in type socket, providing a positive snap-fastener lock for the tube prong, while maintaining the locking point a maximum predetermined distance from the upper face of the socket. The construction also provides an effective ground connection for the tube where such grounding is desired.

Although I have described one preferred form of the invention, I do not wish to be limited thereby because the scope of my invention is best defined by the following claims.

I claim:

1. An electric socket for pronged vacuum and like tubes including a body of insulating material, said body formed with a central opening extending from the upper surface of said socket body to near the opposite end of the central portion forming a relatively deep central bore and a bottom wall of insulating material for said bore, said body provided with passages adjacent an outer surface of said bottom wall and communicating with said bore, and a U-shaped fastener means having a bight portion engaging an outer surface of said bottom wall and opposed resilient locking fingers extending through said passages into said bore for locking engagement with a tube prong inserted therein.

2. An electric socket for pronged vacuum and like tubes including a body of insulating material, said body formed with a central opening extending from the upper surface of said socket body to near the opposite end of the central portion forming a relatively deep central bore and an integral bottom wall of insulating material for said bore, said body provided with passages adjacent an outer surface of said bottom wall and communicating with said bore, and a U-shaped fastener means having a bight portion engaging an outer surface of said bottom wall and opposed resilient locking fingers extending through said passages into said bore for locking engagement with a tube prong inserted therein, and means on said fingers for engagement with an inner surface of said bottom wall for securing said fastener means to said socket.

3. An electric socket for pronged vacuum and like tubes comprising a body of insulating material formed with a central depending post and having a central opening extending from the upper surface of the body to near the bottom of said post forming a prong-receiving bore and a bottom wall, said post being further provided with fastener-receiving passages communicating with said bore, a fastener mounted on said bottom wall and having a bridge portion engaging the outer face thereof and opposed resilient locking fingers extending through said passages into said bore adapted for snap fastener locking engagement with a tube prong inserted therein, and means integral with said fastener for engagement with the inner face of said bottom wall for securely attaching said fastener thereto.

4. An electric socket for pronged vacuum and like tubes comprising a body of insulating material formed with a central depending post and having a central opening extending from the upper surface of the body to near the bottom of said post forming a prong-receiving bore and a bottom wall, said post being further provided with fastener-receiving passages communicating with said bore, a fastener mounted on said bottom wall and having a bridge portion engaging the outer face thereof and opposed resilient locking fingers extending through said passages into said bore adapted for snap fastener locking engagement with a tube prong inserted therein, and lugs integral with said locking fingers for engagement with the inner face of said bottom wall for securely attaching said fastener thereto.

5. An electric socket for pronged vacuum and like tubes comprising a body of insulating material formed with a central depending post and having a central opening extending from the upper surface of the body to near the bottom of said post forming a prong-receiving bore and a bottom wall, said post being further provided with fastener receiving passages communicating with said bore and passing through said bottom wall, and a fastener member mounted on said bottom wall having a bridge portion engaging the outer face thereof and opposed resilient locking fingers extending through said passages into said bore adapted for snap fastener locking engagement with a tube prong inserted therein and lugs integral with said locking fingers for engagement with the inner face of said bottom wall for securely attaching said fastener thereto.

6. A lock-in socket for pronged electrical tubes and the like comprising a body of insulating material having an annular series of contact-receiving openings open through the top thereof and a central lock-prong-receiving bore, a wall bridging the bottom of said bore, a plurality of prong-receiving contacts mounted in said openings and adapted to receive and establish electrical contact with a plurality of prongs inserted into said openings from the top of said body, a U-shaped member inserted in said bore from the bottom of said body and having the bight portion thereof underlying said bore bottom wall, the terminal end portions of said U-shaped member provided with prong-locking means disposed in said bore in predetermined spaced relation between the top of said body and the bore bottom wall.

7. A lock-in socket for pronged electrical tubes and the like comprising a body of insulating material having an annular series of contact-receiving openings open through the top thereof and a central lock-prong-receiving bore, a plurality of prong-receiving contacts mounted in said openings and adapted to receive and establish electrical contact with a plurality of prongs inserted into said openings from the top of said body, a wall bridging the bottom of said bore and having an opening on each side thereof, a lock-prong fastener member having portions thereof insertable through said openings and into said bore from the bottom of said body, and means for attaching said member to said bore

bottom wall to limit movement thereof in a direction toward the top of said body.

SCIPIONE M. DEL CAMP.

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