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M. COHEN ET AL

VACUUM TUBE SOCKET

Filed Aug. 26, 1926

FIG. 1.

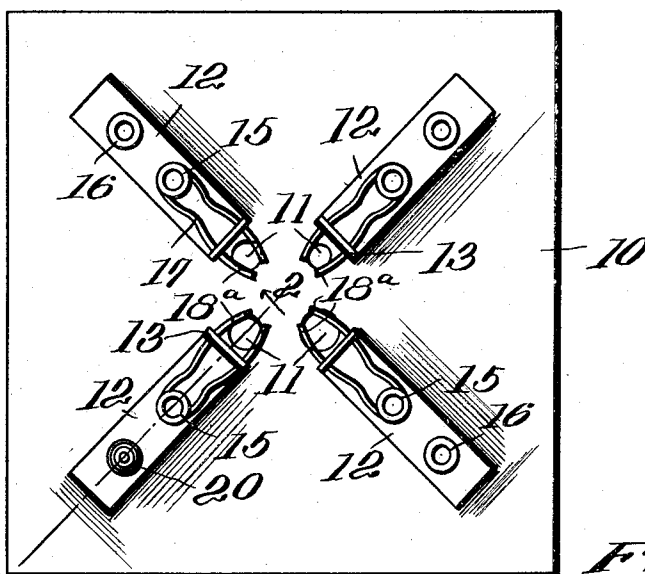


FIG. 2.

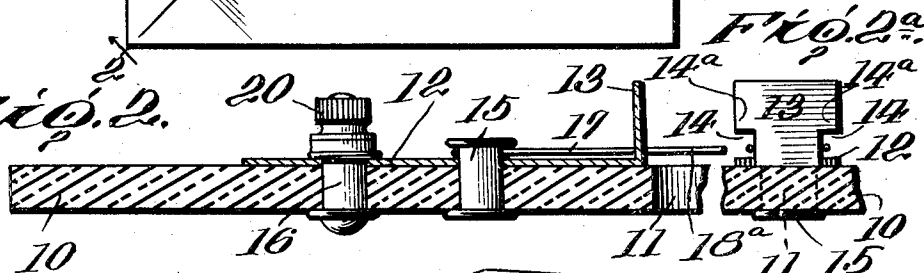


FIG. 3.

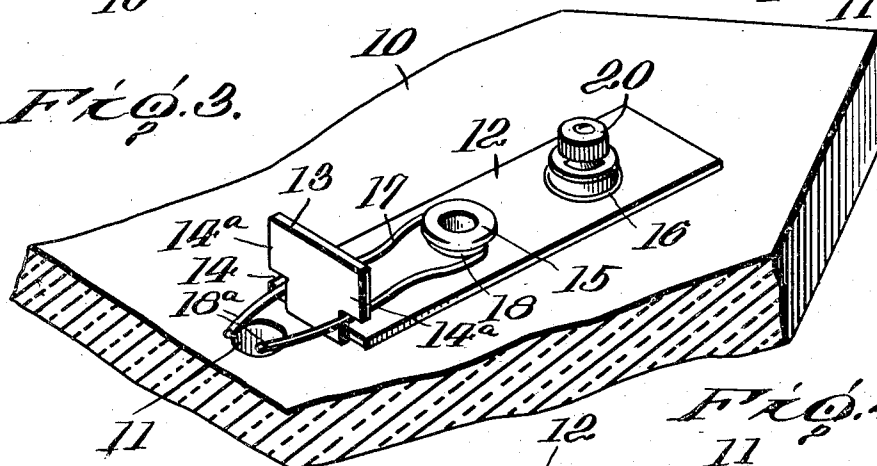
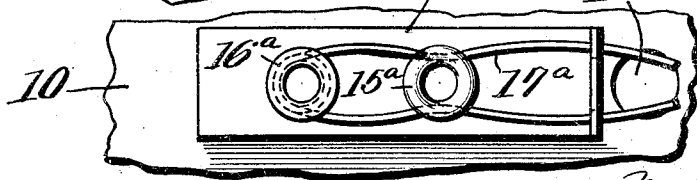


FIG. 4.



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VACUUM-TUBE SOCKET.

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This invention relates to improvements in vacuum tube sockets and more particularly to the terminal elements for employment in the same.

It has heretofore been proposed to make sockets for receiving the conductor prongs at the base of the vacuum tube in such manner that they are adapted for various patterns of tubes with long or short prongs. It has also been proposed to assemble the socket of various elements, and in particular to prepare such sockets upon insulating panels to be placed within a radio apparatus.

The present invention proposes improvements in the conductor elements of such sockets, these conductor elements being capable of being assembled upon a separate insulating member to form a socket which may be moved as such, or to be secured at appropriate points of an insulating panel in a radio apparatus.

A feature of the invention is the simplicity and cheapness of the assembly, and the ease of locating it within or upon a radio apparatus.

With these and other objects in view as will appear in the course of the following specification, the invention is illustrated on the accompanying drawings, in which:

Fig. 1 is a plan view of a tube socket assembled upon an insulating plate, with four of the elements in position and adapted to engage the four prongs at the base of a standard vacuum tube.

Fig. 2 is a section through the panel on line 2—2 of Fig. 1, on an enlarged scale.

Fig. 2^a is an end view of the guide plate of one of the elements, with a portion of a panel.

Fig. 3 is a perspective view of an assembled element.

Fig. 4 is a plan view of a modified form of the element.

In these drawings, an insulating panel 10 has a number of apertures 11 therethrough, corresponding to the number of prongs upon the vacuum tube which is to be supported, and which will be four with the customary three electrode electron discharge tube of current use. Mounted in substantially radial relation to the geometric center of these apertures are a number of guide plates 12 corresponding to the number of apertures. Each of these guide plates, as shown in Fig. 3,

has a flat portion adapted to fit against the insulating base 10, and has at the end adjacent its respective aperture an upturned standard 13 with the lateral notches 14 cut therein adjacent the base, so as to present the guide shoulders 14^a for the purpose to be set forth hereinafter.

Each of these guide plates has a pair of apertures in its flat portion through which are passed the hollow tubular rivets 15 and 16. The rivet 16 is headed over against one face of the insulating base 10 and at the other end is headed over to clamp the guide plate 12 into rigid relation with the base, so that it cannot be removed therefrom. The other rivet 15 is headed over into relation with the base 10, and at its other end is headed a slight distance above the upper surface of the guide plate 12 in the form shown in Fig. 2.

Each of these guide plates is provided with a bent wire contact and fastening member 17 which is bent at approximately the middle of its length to fit around the stem of the rivet 15. This member 17 may simply be of U-shape, Fig. 2; or it may have a closed loop at its end as shown at 18 in Fig. 3. It is made of wire of suitable size and strength to frictionally grip the respective prong of the vacuum tube and hold the latter against axial displacement, and also to serve to establish a firm electric contact therewith; its ends adjacent the respective aperture 11 are bent inward so as to project chordally over the aperture as shown in Figs. 1 and 4. The sides of this member 17 pass through notches 14 and are guided between the flat portion of the element 12 and the shoulders 14^a on the upright standard.

In the modified form of Fig. 4, the wire member 17^a is located about the rivet 16^a most distant from the aperture 11, and is guided beneath the flange of the rivet 15^a.

In order to insert a vacuum tube in a radio apparatus having such a socket wherein to receive the tube, the tube is placed with its proper prongs above their respective apertures and pushed downward into position. The several prongs enter between the forward ends 18^a of the member 17, and cause them to operate of their own resiliency. The member 17 is prevented from moving downward, when the elements are located above the insulating plate, by its engagement

with the upper surface of the guide plate 12. When the prongs have been inserted in this manner, they pass into the apertures 11 and are guided thereby against a rocking movement from side to side. The standard 13 may be made so low that even the short prong tubes may be employed, with such a socket.

When the tube is to be removed, it is seized and drawn upward, whereupon the member 17 will be prevented from following along with it by the engagement of its arms in the notches 14 and against the shoulders or standard 13.

A binding post 20 is located in one of the tubular rivets 15 or 16, and serves to facilitate the connection of the conductors in electrical relation to the respective prong of the tube.

It is apparent that the members so constructed may be employed either upon a separate base plate 10, as shown in Fig. 1, or may be employed by the manufacture of radio apparatus for assembly upon an insulating panel which carries other elements of the radio apparatus.

While in the above description it has been stated and in the drawings it has been shown that the elements are located above the insulating plate, it is obvious that this is not essential but that they may be located beneath the same, so the prongs of the tube may be introduced first through the guide apertures 11, and thereafter pass between and into contact with the ends 18^a of the member 17.

Other obvious changes may be made in the form of the parts and their arrangement without departing from the scope of the appended claims.

What is claimed as new is:

1. In a terminal element for a vacuum

tube socket, a guide plate having an upstanding member integral therewith, means to hold said guide plate in predetermined relation upon an insulating panel, and a resilient contact member secured to said plate by said securing means and movable in a plane parallel to said plate, and guided in such movement by a notch in said upstanding member.

2. In a terminal element for a vacuum tube socket, a metal plate having an upstanding member integral therewith, said member having guide shoulders thereon, a wire loop with arms received and guided by said plate and said shoulders and thereby limited in movement in one direction, means on said plate to hold said loop against movement in another direction at right angles to said first direction, said arms being individually movable in a plane at right angles to said first two directions whereby to receive and establish electrical conductive relation with the prongs of the vacuum tube.

3. In a vacuum tube socket, an insulating base, a metal plate on said base and having an upstanding member thereon with guide shoulders, a device passing into said base and plate to hold the same in rigid relation, a re-bent wire loop having its bend located above and held in position by said device, said plate having apertures therein for the respective prong of the vacuum tube, the arms of said wire loop being guided by the said plate and said shoulders and extending chordally across the aperture for engagement by the respective prong of the vacuum tube.

In testimony whereof, we affix our signatures.

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