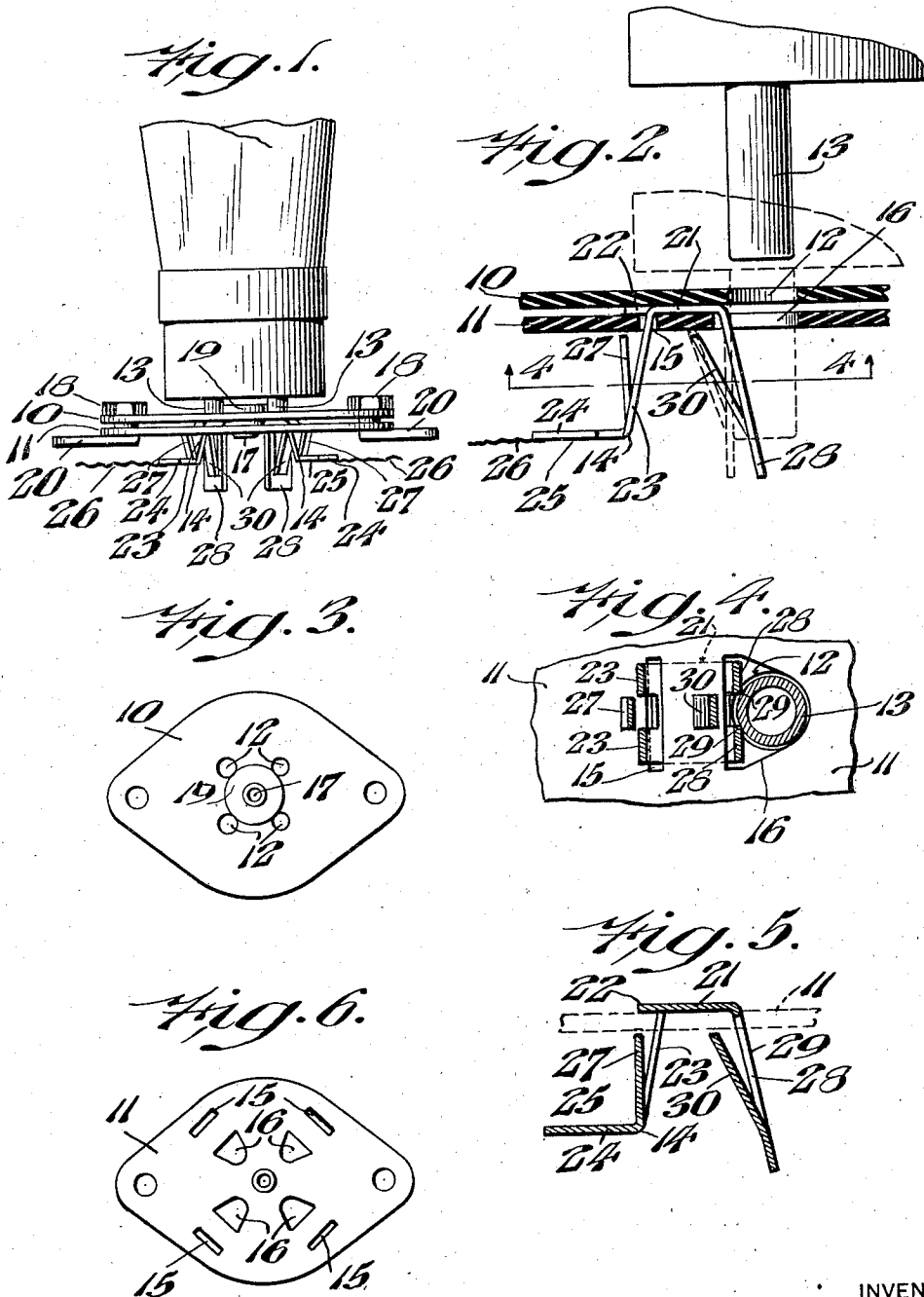


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ELECTRICAL CONNECTER
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ELECTRICAL CONNECTER

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4 Claims. (Cl. 173—328)

This invention relates to electrical connectors, and particularly to radio tube sockets.

It is conventional in radio receiving sets to provide sockets as permanent installations arranged to be removably engaged by the particular tubes or valves for the circuit used. As heretofore provided the sockets have been expensive elements and frequently provided improper electrical contacts with the tubes, with unsatisfactory results.

It is among the objects of the invention; to provide a simplified and economical tube socket; to provide a socket in which positive electrical contacts are established with each prong of the associated tube; to provide integral elements for sockets for radio tubes arranged for manual insertion in apertured plates to function as a contactor element without direct riveting or other attachment; to provide a resilient contact element having a reinforcing leg to resist flexing of the element; to provide in a socket a grooved contact element arranged for intimate physical and electrical contact with an associated contact element; to provide a terminal for electrical contacts which has a reinforcing leg operatively associated with it to strengthen the terminal so as to facilitate soldering and the like, and many other objects and advantages as will become more apparent as the description proceeds.

In the accompanying drawing:

Fig. 1 represents a side elevation through an assembled tube and socket,

Fig. 2 represents a fragmentary section on an enlarged scale through a resilient contact of the socket showing its position in dotted lines, when deflected by the prong of the radio tube or the like,

Fig. 3 represents a plan of the top plate of the socket,

Fig. 4 represents a fragmentary horizontal section through a prong of an associated tube and the socket,

Fig. 5 represents a transverse section through the integral contact element of the socket, and

Fig. 6 represents a plan of the bottom plate of the socket.

The socket comprises a top plate 10 and a bottom plate 11. The top plate 10 is primarily a guard or keeper for the manually inserted electrical contacts and has apertures 12 to receive and guide the prongs 13 of the radio tube. The bottom plate, forms the primary support of the electrical contacts 14, and is provided with an appropriate number of pairs of openings, each pair comprising a terminal opening 15, prefer-

ably rectangular, and a connector opening 16, which has preferably a substantially hemispherical contour, with an edge parallel to its associated slot or opening 15. Plates 10 and 11 are both made of insulating material, may be somewhat flexible if desired, and are linked together tightly at the center after the contact elements 14 are mounted, as by a tubular rivet 17 also engaging a guiding boss 19, as shown in U. S. Patent No. 1,771,094. They are also each suitably apertured in registration for mounting in the receiving set as shown in Fig. 1, as by bolts 18 engaging support 20.

The electrical elements 14 comprise each a substantially V shaped clip of metal having a substantially flat base 21. A tongue or tab is struck out as at 22 to extend beyond but in the plane of the flat base. The terminal leg of the element comprises the leg portion 23 merging into the angularly extending terminal 24. The latter is suitably apertured as at 25 so as to facilitate subsequent attachment of a wire or connector 26. The terminal leg is longitudinally scored and a subleg, or reinforcing lug 27 extends out of the plane of the leg at its junction with the base, but merges into the leg at its junction with the angular terminal. The divergent contact leg 28 is longitudinally slit in parallelism with the edges and a tongue, tab, or reinforcing lug 30 is formed extending angularly from the leg 28 toward the terminal leg. Parallel scraping contact establishing shoulders 29 are thus formed.

Each contact element is manually or mechanically caused to be operatively associated with a pair of openings in the plate 11. Thus terminal 24 is inserted from the top into aperture 15 the element is then turned about the pivot formed by the junction of the terminal 24 with the terminal leg 23 as an axis, the contact leg is flexed toward terminal leg until its end can enter the aperture 16. Pressure on the base 21 causes proper positioning, at which point the reinforcing lugs 27 and 30 clear the respective openings and, extending over material of the plate beside the apertures lock the elements in position and prevent undesired retraction. This is facilitated by the engagement of the plane tongue 22 on the top surface of the plate.

It will be clear that the single plate 11 may be used alone, although the provision of the plate 10, conceals the base sections of the elements, and assists in holding the elements against rattling and undesired movements, and also reinforces the unit.

It will be observed that each leg overlies the

registering openings 12 and 16 so that entrance of the prong 13 is slightly resisted by the contact element. As it is pushed further in it slides upon the parallel spaced shoulders 29 as the contact is pushed back out of its path, with a resulting scoring or scratching action which insures a good electrical contact. During the entrance of the prong 13 the contact leg is deflected slightly laterally, thus bringing the reinforcing lug 30 into abutment with the plate, and, the inward movement being continued, the resistance of the leg to lateral deflection is increased so that the scoring or scratching action is intensified, while the frictional engagement of the contact leg upon the prong 13 is intensified. The result is a firm and rigid support of the radio tube, with an assured intimate electrical contact for each prong thereof.

It will be observed that the socket is of simplicity and cheap production cost, while possessing improved contact maintaining properties, and holds the associated tube rigidly in position.

I claim as my invention:

1. In a socket in combination, an apertured plate, an electrical contact element in operative association with said apertured plate and extending through an aperture thereof and comprising a base, a contact leg merging into the base, said leg being longitudinally slit to form an integral lug, the lug deflected from the leg and extending toward the plate to abut the plate when the leg is laterally deflected, the edges of the slit forming scoring shoulders.

2. In a socket in combination, an apertured plate, an electrical contact element in operative association with said apertured plate and extending through an aperture thereof and comprising a base, a contact leg merging into the base, said leg being longitudinally slit to form

an integral lug, the lug deflected from the leg and extending toward the plate to abut the plate when the leg is laterally deflected, the edges of the slit forming scoring shoulders, and a terminal leg merging into the base, a tongue formed on the terminal leg to engage said plate.

3. In a socket in combination, an apertured plate, an electrical contact element in operative association with said apertured plate and extending through an aperture thereof and comprising a base, a contact leg merging into the base, said leg being longitudinally slit to form an integral lug, the lug deflected from the leg and extending toward the plate to abut the plate when the leg is laterally deflected, the edges of the slit forming scoring shoulders, a terminal leg merging into the base, a tongue formed on the terminal leg to engage said plate, and a lug formed on said base to engage the side of said plate opposite to said integral lug.

4. A radio socket comprising a supporting plate having a plurality of pairs of openings, each pair comprising an outer rectangular opening and an inner substantially hemispherical opening, a contact element for each pair of openings, each element including a base, a terminal leg on the base extending through the rectangular opening, a lug merging into the leg at its outer end and arranged to underlie the plate, a terminal angularly inclined from the terminal leg, a contact leg on the base extending through the hemispherical opening, a lug merging into the contact leg toward its outer end and underlying the plate, a lug formed on the base to overlie the plate, a cover plate having openings for registration with the hemispherical openings to form therewith prong receiving and guiding apertures, and means connecting the plates.

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