

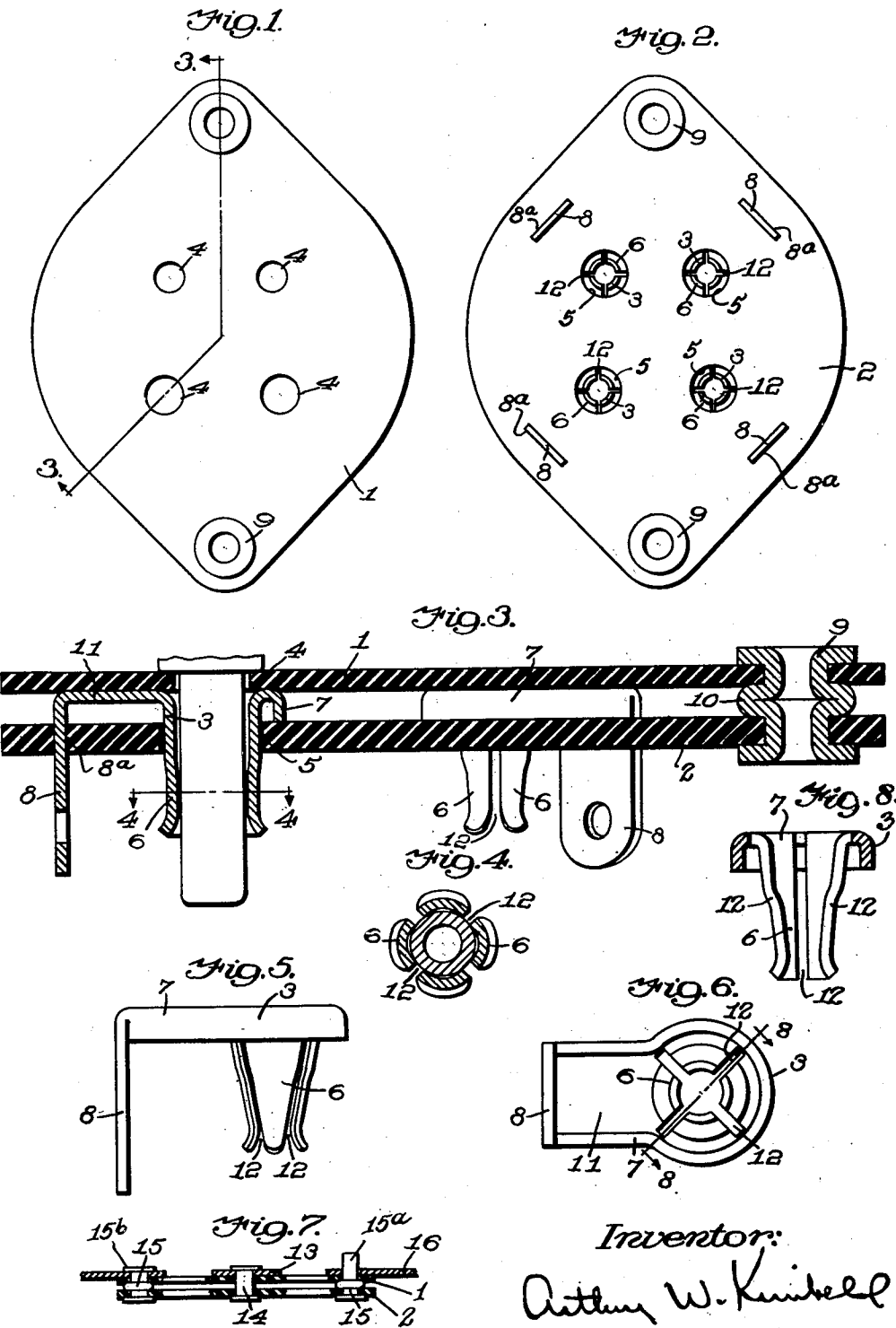
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VACUUM TUBE SOCKET AND TERMINAL THEREFOR

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VACUUM TUBE SOCKET AND TERMINAL THEREFOR

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8 Claims. (Cl. 173—328)

My invention is for improvements in socket devices and terminal members for use therewith and particularly adapted for use as radio tube sockets.

5 In the drawing accompanying and forming a part of this application: Figure 1 is a plan of a preferred socket assembly; Fig. 2 is a bottom view of the socket assembly; Fig. 3 is a cross-section taken on the line 3—3 on Figure 1; Fig. 4 is an enlarged section taken on the line 4—4 on Fig. 3; Fig. 5 is a side elevation of a terminal member used in the socket assembly; Fig. 6 is a bottom view of the terminal member; Fig. 7 is a section showing a slightly different assembly of parts of a socket for attachment to and partly 10 attached to a support and Fig. 8 is a section taken on the line 8—8 of Fig. 6.

While I have illustrated in the drawing, and will hereinafter described, a preferred embodiment of my invention, I do not wish to be limited to the particular details illustrated and described, my invention being best set forth in the claims which form a part of my application.

20 The particular socket which I have selected and illustrated in the accompanying drawing is particularly adapted for use in connection with radio apparatus.

The socket illustrated in Figs. 1, 2 and 3 comprises a pair of plates of insulating material 1 and 2 between which are held a number of terminal members 3. The top plate 1 has apertures 4 through which the contact members of a vacuum tube may pass, and the bottom plate 2 has apertures 5 through which the yieldable sleeve portions 6 of the terminal members 3 pass, as clearly illustrated in Fig. 3. The plates 1 and 2 are spaced from each other by flange means 7 provided by the terminal members. A wiring terminal 8 extends from each terminal member 40 through a cooperating slot 8^a in the plate 2 (Figs. 2 and 3) to prevent rotation of the terminal members.

The elements of the socket are held together by means of rivets 9 which provide spacing means 10 as well as riveting means. Two rivets 9 are used (Figs. 1 and 2) and the spacing means 10 is provided intermediate the ends of the rivet (Fig. 3) by expanding in any suitable manner. This spacing means should be equal to the thickness of the flange means 7 of the terminal members 3 (as shown in Fig. 3) to maintain uniform spacing of the plates 1 and 2 and prevent breaking or cracking of the insulating material when the ends of the rivet are deformed.

55 Each of the terminal members is pressed from

a single piece of flat metal and has a base 11 from which the yieldable sleeve is formed by passing the metal between a series of dies which "draw out" the metal and finally punch the sleeve 6 to remove portions of the metal and form the slits 12, as shown in Fig. 8. The slits 12 extend into the base (Fig. 6) so that the fingers which form the sleeve may have greater resiliency by being adapted to bend along lines passing through the base 11 between the ends of the slits 12. The flange means 7 extends from the periphery of the base 11 and provides means for spacing apart the two plates 1 and 2 so that there will be no interference with the bending of those portions of the base lying between the slits 12 when the sleeve 6 is expanded.

A novel feature of my invention is embodied in the contact made between the contact members of a tube (one of which is shown in Fig. 3) and the terminal members 3. The radius of the inside face of each finger of a sleeve 6 is such that when a contact member is forced into the sleeve only the edges of the fingers engage the contact member, as shown in Fig. 4. These edges are sharp and therefore make a "cutting" engagement with the contact member. This "cutting" engagement is very desirable because it means that each finger makes two contacts for a substantial portion of its length (Fig. 3) and each contact, due to the fact that it is of a "cutting" nature, makes an improved electrical connection over one which is merely a sliding contact without cutting into the metal. The advantages of having the edges of the fingers of the sleeves 6 "cut" into the metal of the contacts will, it is believed, be appreciated by those skilled in the electrical art and therefore no further detailed explanation is necessary.

The socket which I have illustrated and described is simple in construction, easy to assemble and requires but a minimum number of parts for a two-plate socket.

If it is desirable to secure the plates together in the middle, as for instance when using a guide washer 13 held in place by a rivet 14, as shown in Fig. 6, the rivets 15 at the ends of the sockets may be made to provide the means for attaching the socket to a support 16. With the type of socket construction shown in Fig. 7, the rivets 15 may each be deformed at one end at the point of manufacture and the other end may be left in the form of a tube 15^a so that it may be passed through an aperture in the support 16 and then deformed as shown at 15^b in Fig. 7. With this construction no separate bolts, screws or rivets are necessary for attaching the sockets.

The terminal members are simple, durable, and inexpensive to manufacture and furthermore may be made from relatively small pieces of sheet metal due to the fact that the sleeves are drawn from the material of the base instead of being folded.

I claim:

1. A socket comprising, in combination, a pair of insulating plate members spaced apart and each having a number of apertures in alignment with the apertures of the other, terminal members having bases located between the spaced faces of said insulating plates and each terminal member having a yieldable sleeve pressed from the material of the base within the periphery thereof and extending through an aperture in one of the plate members, said sleeve being divided by slits extending throughout the length of the sleeve and into the base of the terminal member to permit expansion and contraction of said sleeve and a flange means extending at a right angle from the edge of the base entirely around the periphery of the base to provide spacing means for the two plate members, and said yieldable sleeve being located inside of and spaced from said flange means.

2. A socket comprising, in combination, a pair of insulating plate members each having a number of apertures in alignment with the apertures of the other, terminal members having bases located between said insulating plates, and an assembling rivet extending through both plates and having an integral laterally extending flange located between the two plate members to provide a spacer.

3. A socket comprising, in combination, a pair of insulating plate members each having a number of apertures in alignment with the apertures of the other, terminal members having bases located between said insulating plates, and an assembling rivet extending through both plates and having an integral laterally extending flange located between the two plate members to provide a spacer and said rivet being longer at one side of the spacing flange than at the other side to extend a substantial distance beyond one of the plate members to provide means for attaching the socket to a support.

4. A sheet metal electric terminal device comprising a base having an aperture to permit passage of a contact member, a sleeve formed from the material of said base pressed out to form said aperture and extending from said base in alignment with said aperture, said sleeve being divided by a number of narrow slits extending throughout the length of the sleeve and into the base to permit expansion and contraction of said sleeve, and a wiring terminal extending from said base.

5. A sheet metal electric terminal device com-

prising a base having an aperture to permit passage of a contact member, a sleeve formed from the material of said base pressed out to form said aperture and extending from said base in alignment with said aperture, said sleeve being divided by a number of narrow slits extending throughout the length of the sleeve and into the base to permit expansion and contraction of said sleeve, and a flange extending from the periphery of the base to provide a spacer means.

6. A sheet metal electric terminal device comprising a base having an aperture to permit passage of a contact member, a sleeve formed from the material of said base pressed out to form said aperture and extending from said base in alignment with said aperture, said sleeve being divided by a number of narrow slits dividing said sleeve into a series of independently yieldable fingers, said slits extending into the base to permit expansion of the fingers along lines passing through the material of the base between the ends of the slits.

7. In a socket of the type comprising a pair of flat insulating plates apertured in alignment with each other, terminal members, having contact sleeves extending through the apertures in one of said plates and bases retained between said plates; each terminal member having its base, retained between the plates, provided with an aperture to permit passage of a contact member; and having its sleeve, extending from its base and through the plate, formed integrally with the base by the metal pressed therefrom to form said aperture, its sleeve thus extending from the aperture-defining edge of its base; said sleeve being divided by a number of narrow slits into more than two contact fingers; and said terminal being provided with means, extending from a part of its base spaced outwardly from its aperture-defining edge, and thus in outwardly spaced relation to its sleeve, spacing apart the two insulating plates, and with wiring connection means also carried by its base.

8. As an article of manufacture, a socket comprising, in combination, a pair of insulating plate members each having a number of apertures in alignment with the apertures of the other, terminal members having bases located between said insulating plates, rivet means extending through both said plates, said rivet means being secured to one of said plates and extending beyond the other of said plates to provide means for attaching the socket to a support, and means for securing the insulating plates of said article of manufacture against separation.

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