

Oct. 27, 1942.

A. C. PETERS

2,300,309

CONTACT MEMBERS

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Fig. 1.

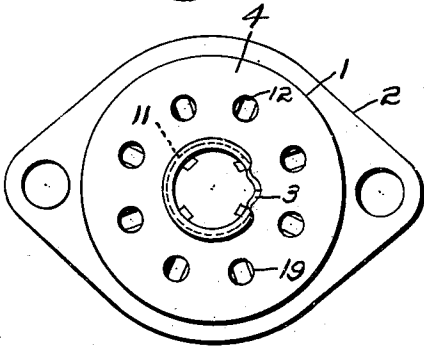


Fig. 2.

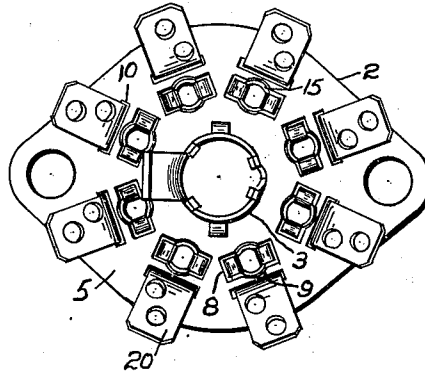


Fig. 3.

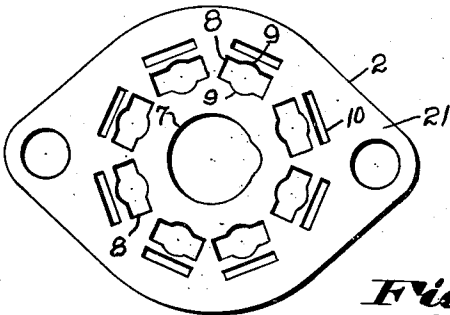


Fig. 4.

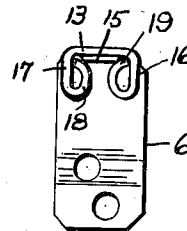


Fig. 6.

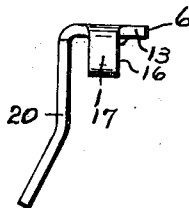


Fig. 5.

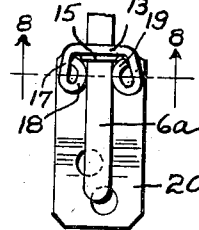


Fig. 7.

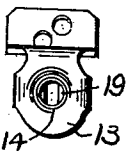
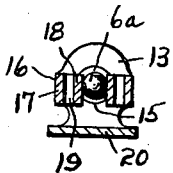


Fig. 8.



Inventor:
Arthur C. Peters.
by John Todd
Att'y.

UNITED STATES PATENT OFFICE

2,300,309

CONTACT MEMBER

Arthur C. Peters, Chicago, Ill., assignor to Cinch Manufacturing Corporation, Chicago, Ill., a corporation of Illinois

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1 Claim. (Cl. 173—328)

This invention relates to contact members and particularly to contact members of the type carried by radio tube sockets for cooperative electrical engagement with prong terminals projecting from the base of a radio tube.

The chief object of my invention is the provision of a contact member of simple and inexpensive construction formed in a way to effect a good electrical connection with a cooperating prong.

Other objects and uses of my invention will be apparent from inspection of the drawing and specification hereinbelow set forth.

Referring to the drawing, in which I have illustrated a preferred embodiment of my invention:

Fig. 1 is a top plan view of a socket member having my improved contact members assembled therewith;

Fig. 2 is a bottom plan view of the socket shown in Fig. 1;

Fig. 3 is a view showing one of the insulating plates of the socket member;

Fig. 4 is a front plan of the contact member per se;

Fig. 5 is a view similar to Fig. 4 and showing a prong-like terminal in electrical engagement with the contact member;

Fig. 6 is a side elevation of the contact member shown in Fig. 4;

Fig. 7 is a top view of the contact member per se; and

Fig. 8 is a section taken on the line 8—8 of Fig. 5.

The socket member which I have chosen for purposes of illustrating my invention is in the form of a device comprising top and bottom insulating plates 1 and 2. The socket member carries a central positioning key 3, the mechanical details of which form no part of my present invention. The positioning key, which may be tubular in form, extends through the insulating plates 1 and 2 substantially centrally thereof and is adapted to receive a positioning prong (not shown) of a vacuum tube. The key, in my preferred form, is constructed to provide portions engaging the outer surface 4 of the insulating plate 1 and the outer surface 5 of the insulating plate 2 to maintain the plates in assembly. A series of my improved contact terminals 6 is carried by the socket member for cooperative electrical engagement with a series of terminal prongs 6a (Figs. 5 and 8) depending from the base of a vacuum tube (not shown). The lower plate 2 of my preferred form of socket member has a central opening 7 for receiving the afore-

said positioning key and series of apertures 8 arranged in a circle around the central opening 7 for receiving prong-engaging portions of the contact members 6. The apertures 8 are generally rectangular in form and preferably have opposed notches 9 of curved configuration in their longitudinal edges. The plate 2 has a series of slots 10 complementary to the openings 8 for receiving soldering terminals of the contact members. The insulating plate 1 has a central opening 11 (Fig. 1) in alignment with the opening 7 of the plate 2 and a series of circular openings 12 arranged in a circle around the opening 11 and in alignment with the openings 8 of the lower plate 2.

Referring in detail to the contact members 6, I have shown one formed entirely from one piece of sheet metal and providing a substantially flat base portion 13 having a prong-receiving opening 14 (Fig. 7). An annular lip 15 drawn from the material of the base 13 surrounds the opening 14 and extends on the lower side of the base 13, viewing Fig. 4. Opposed arm portions 16 extend from opposed edges of the base outwardly away from the base on the lower side thereof. Each of the arm portions 16 has a yieldable portion 17 extending outwardly away from the base and a portion 18 integral with the outermost end of the portion 17 extending reversely toward the base on the inner side of the portion 17 and spaced from the portion 17 for the greater part of its length. The portions 18 are disposed in opposite relation to receive a prong terminal between them and are in alignment with the opening 14 of the base to engage the prong terminal projected through the opening 14, as most clearly shown in Figs. 5 and 8. Portions 19 adjacent the free ends of the reversely extending portions 18 diverge and engage the outwardly extending portions 17 substantially at the junctions thereof with the base 13, as most clearly shown in Fig. 4. The diverging portions 19 cooperate to provide a lead to facilitate engagement of the prong terminal between the portions 18—18 and, also, to act as cams to effect expansion of the portions 17, as will be described. A tail portion 20 integrally joined to the base 13 extends on the same side of the base as the arms 16 and is formed to enable a lead wire (not shown) to be soldered thereto.

In assembling my improved contact member with the insulating plates, the contact member is positioned relative to the plate 2 with the base 13 abutting the inner surface 21 (Fig. 3) of the plate and the tail portion 20 projecting

through one of the slots 10. When the contact member is in this position the lip 15 extends into the aperture 8 so as to be disposed within the imaginary circle partially defined by the curved walls of the notches 9-9 and the arms 16-16 5 also lie within the aperture 8, as most clearly shown in Fig. 2. Finally, the upper plate 1 is secured in superposed relation to the lower plate 2 by any suitable means such as the center eyelet or positioning key 3, thereby maintaining the contact members in assembly with the insulating parts of the socket.

Operation of the contact members to engage cooperating prong terminals of a vacuum tube is most clearly shown in Figs. 5 and 8. Thus, 15 when a prong terminal 6^a of the vacuum tube is moved into electrical connection with a contact member 6, it projects through the opening 14 of the base 13 of one of the contacts and engages the diverging portions 19 of the arms 16. 20 The diverging portions 19 lead the prong into more extended engagement with the portions 18 and at the same time act as cams, which, when the terminal 6^a is pressed home, cause the outwardly extending portions 17 to swing outwardly 25 in a pivotal movement from points substantially near their points of junction with the base 13. The tendency of the portions 17 to return toward normal position effects a spring engagement between the reversely extending portions 18 of the 30 arms and the contacts 6^a, thereby making a good electrical connection.

Thus by my invention I have provided contact members which may be manufactured inexpensively in large quantities and which are formed to provide portions capable of exerting a strong and constant spring tension on prong terminals in the manner hereinabove described.

Although I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited thereby because the scope of my invention is best defined by the following claim.

I claim:

An electrical contact of the class described comprising a base formed with a prong-receiving opening and a surrounding lip providing a prong-receiving and engaging sleeve, a plurality of spaced spring arms extending angularly from said base on opposite sides of said sleeve and embracing said sleeve between them, the end portions of said arms being inwardly curved to provide substantially rigid loop portions the ends of which terminate in engagement with said arms and adjacent said sleeve, the opposite inner faces of said curved loop portions presenting concavo-convexed cam surfaces adjacent said sleeve for engaging the prong member under tension of said spring arms for effecting an electrical connection between said prong and the sleeve and curved loop portions of the contact.

ARTHUR C. PETERS.