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A. W. MINER
RADIO TUBE CONNECTER
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1,965,964

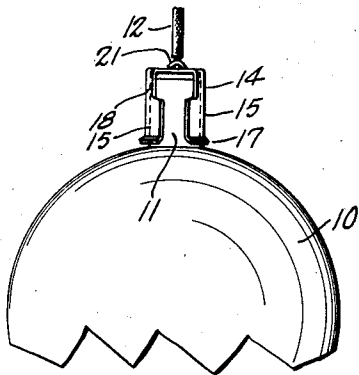


Fig. 1.

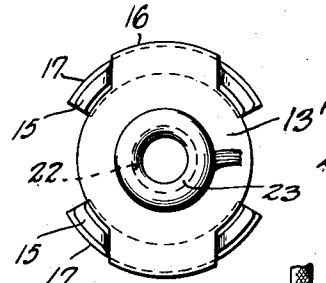


Fig. 5.

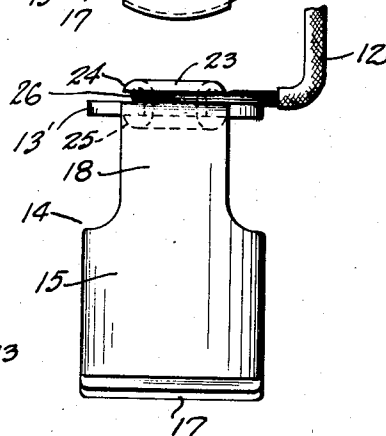


Fig. 6.

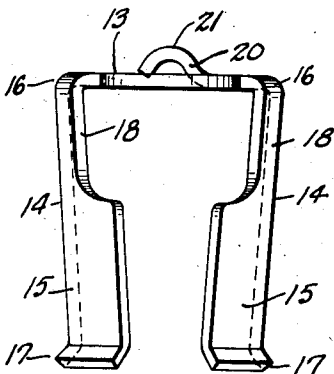


Fig. 2.

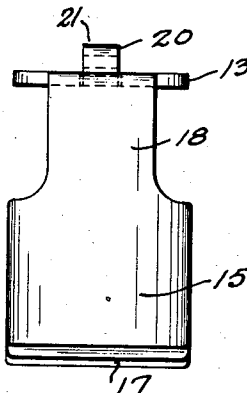


Fig. 3.

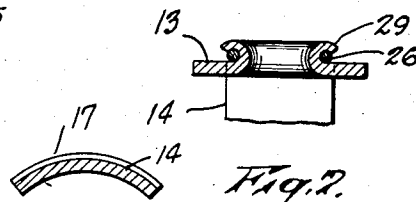


Fig. 7.

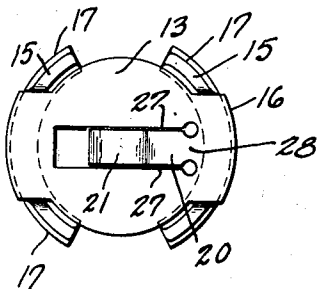


Fig. 4.

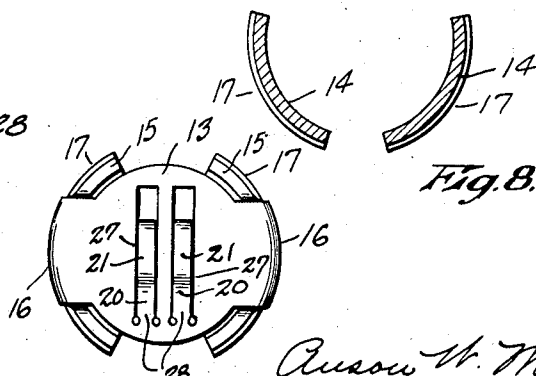


Fig. 9.

Fig. 8.

Inventors

A. W. Miner

Hooster & Davis
Attorneys

UNITED STATES PATENT OFFICE

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RADIO TUBE CONNECTER

Anson W. Miner, Waterbury, Conn., assignor to
The Waterbury Brass Goods Corporation,
Waterbury, Conn., a corporation of Connecticut

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3 Claims. (Cl. 173—269)

This invention relates to connectors, and has for an object to provide an improved connector for use in connecting a lead wire to a ferrule such for example which serves as a binding post on certain types of radio or vacuum bulbs or tubes.

It is a further object of this invention to provide a tube connector that may be inexpensively fabricated and that may be stamped out of a piece of sheet material and then formed into shape.

With the foregoing and other objects in view this invention comprises certain constructions, combinations and arrangements of parts as hereinafter set forth, disclosed and claimed as considered in connection with the accompanying drawing. In this drawing,

Fig. 1 shows side view of a preferred embodiment of this invention as in use for connecting a lead wire to the ferrule of a radio or vacuum tube.

Fig. 2 shows a similar side view of the connector per se on a larger scale.

Fig. 3 is a side view of the connector looking toward the right side of Fig. 2.

Fig. 4 shows a top plan view of the connector of Figs. 1, 2 and 3.

Fig. 5 shows a top plan view of another embodiment of this invention.

Fig. 6 shows a side view of Fig. 5.

Fig. 7 is a detailed section of the body portion of a connector showing a somewhat different manner of securing the lead wire.

Fig. 8 is a transverse section through the clamping prongs of a connector showing the use of more than two prongs, and

Fig. 9 is a top plan view of a connector showing the use of more than one of the lead securing means of Figs. 1 to 4.

There is shown at 10 a broken view of a certain conventional type of radio or vacuum tube to the top of which is cemented or otherwise secured a ferrule 11 serving as a binding post or connecting means for one of the elements within the tube, and to which it is desired to connect the lead wire 12. It is very desirable, for good reception or service, that the lead wire 12 be secured to the ferrule 11 with as good an electrical connection as possible, yet at the same time, due to the necessity of removing the tube 10 at intervals for inspection or for changing, due to the tube wearing out, it is desirable that the connection from the lead wire 12 to the ferrule 11 may be easily and quickly separated and as quickly and easily reconnected. The connector

herein disclosed fulfills these conditions, and provides means for making a good electrical and a good mechanical connection between the lead wire 12 and the ferrule 11, and can be quickly attached to and detached from the ferrule.

This connector, as shown, may be stamped and then shaped from sheet metal and comprises a central body portion 13 having two or more side portions 14 integral therewith extending laterally from the sides thereof. In Figs. 1 to 7 and 9 two of these side portions are shown, while in Fig. 8 three are shown. The number may be varied as found most satisfactory or desirable. These side portions 14 have comparatively narrow neck portions 16 adjacent their connection with the central body portion 13 and are comparatively wide at their end portions 15, those illustrated being approximately twice as wide at their ends as at the neck portion, but of course these proportions may be varied. The neck portions 18 are bent as at 16 through an angle slightly greater than a right angle so as to cause their ends to converge toward each other and the bent over portions are curved so that their concaved sides are opposed to each other. At the same time, the tip ends of the wider part 15 are flared outwardly as at 17. As is well known, the ferrule 11 usually consists of a cylindrically shaped piece of metal usually approximately or somewhat larger than the diameter of a lead pencil, and hence the connector is of a size that it may fit over this ferrule and the radius of the body portion 13 plus that of the laterally extending neck portions 18 as far as the bend 16 is substantially equal to or slightly larger than the radius of the ferrule 11, and the interior radius of the concaved sides is approximately the same. Accordingly, inasmuch as the ends 15 converge toward each other, they will be a distance apart somewhat less than the diameter of the ferrule, while the flared ends 17 will be a distance apart somewhat greater than the diameter of the ferrule, and thus as the connector is pressed down onto the ferrule, the flared ends 17 will fit over the ferrule and cause the converging ends 15 to be somewhat sprung apart and come into a good wiping contact with the sides of the ferrule. Due to the inherent resiliency of the metal of which the connector is formed, the ends 15 will tend to converge toward each other, and thus will grip the ferrule and make a secure mechanical connection with the ferrule at the same time that it is in good electrical connection therewith. At the same time, it may be simply and quickly detached therefrom by merely pulling it off the top of the ferrule, and when so de-

tached, the ends 15 will again converge toward each other so as to be ready to again make a good connection when it is again placed on the ferrule. To provide a means for the lead wire 12 to be secured to the connector, one or more tongues 20 may be struck up from the central portion 13 and then curved outwardly and then inwardly as at 21 so that the lead wire may be received between the underpart of the tongue or tongues and the top of the central body portion 13, and the resiliency of the metal will be sufficient to cause the tongue or tongues 20 to grip the lead wire 12 and make a good connection between the wire 12 and the connector. If desired, however, solder may be added over the tongue and the lead wire. This tongue may be formed by cutting two transverse slits 27 in the body portion and across at one end leaving the other end 28 as an integral connection between the tongue and the wall or the body portion. In Figs. 1, 2 and 3 we have shown the use of one tongue 20 only. However, two or more tongues may be used if desired as shown in Fig. 9. If more than one tongue is used, the individual tongues as shown in Fig. 9 might be somewhat narrower than the single tongue of Figs. 1, 2 and 3 and so would be easier to insert a wire under, but of course, this is merely optional. Also, the tongues may be located so as to extend in any direction desired, that is as in Fig. 4 so as to extend between the prongs or legs or transversely thereof as shown in Fig. 9.

There is shown in Figs. 5 and 6 a somewhat different means of securing the lead wire 12 to the connector. In this form, an opening 22 is stamped in the central body portion 13 so that an eyelet 23 may be passed therethrough. The lead wire 12 is then curled about the eyelet 23 as at 26, and the eyelet is riveted over as at 24 and 25 to secured itself and the lead wire to the central body portion. Or if preferred, instead of using a separate eyelet, an eyelet or lip 29 may be drawn up around the hole integral with the body portion and rolled over the wire 26 as indicated. It will be understood that a drop of solder may likewise be added, if desired, although in neither case is solder essential to complete a good connection. The gripping side portions 15 are the same as in the first form and are connected therewith by reduced necks 18 in the same manner. Either form provides a connector, but the forms shown in Figs. 1 to 4, 7 and 9 have the advantage that they may be fabricated more

cheaply than the other form due to the fact that no extra element, as the eyelet 23, is necessary to join the lead wire to the connector.

Having thus set forth the nature of my invention, what I claim is:

1. A connector of the type described stamped from resilient sheet metal and comprising a one piece member including a central body portion to which a lead may be connected, and side portions integral with and extending laterally from the edges of the body portion, said side portions being transversely curved for their entire lengths with the concave sides opposed so as to grip a ferrule terminal of a vacuum tube, said side portions being relatively wide adjacent their free ends and narrower adjacent their connection with the central portion to make them more flexible adjacent the body portion and provide an extended surface outwardly thereof to engage said terminal, the flexing of the device being principally in the narrower portions of the side members.

2. A connector of the type described stamped from resilient sheet metal and comprising a one piece member including a central body portion having an opening therein and to which a lead may be connected, and transversely curved side portions arranged with their concaved sides opposed to grip a ferrule terminal and having neck portions of less width than the gripping portions forming an integral connection with the edges of said body portion, both said neck and gripping portions being transversely curved with the flexing of the device being principally in the said neck portions, and the free ends of said side portions being flared outwardly.

3. A connector of the type described stamped from resilient sheet metal comprising a one piece member including a body portion to which a lead wire may be connected, and side portions extending laterally from the body portion and comprising relatively narrow necks integrally connected to the edges of the body portion and wider portions spaced from the body portion, both said wider and narrower portions being curved transversely and arranged with their concaved sides opposed and converging toward each other so as to grip a ferrule terminal and having their free ends flared outwardly, the flexing of the device being principally in the narrower portions of the side members.

ANSON W. MINER.