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W. B. WALLACE

2,033,748

RADIO TUBE BASE

Filed June 28, 1933

Fig. 1.

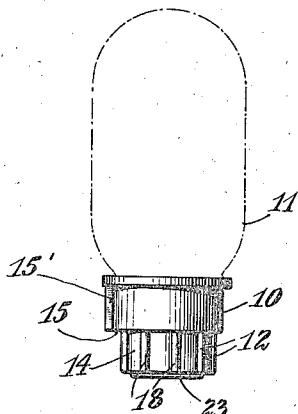


Fig. 3.

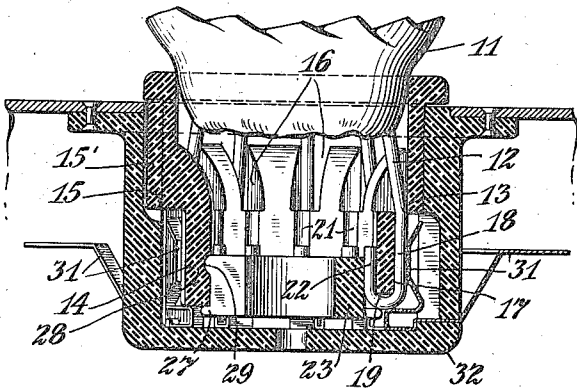


Fig. 2.

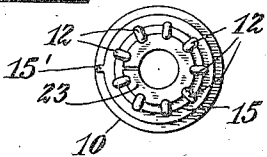


Fig. 4.

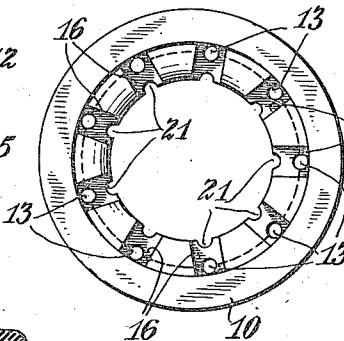


Fig. 6.

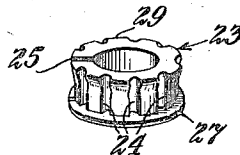


Fig. 5.

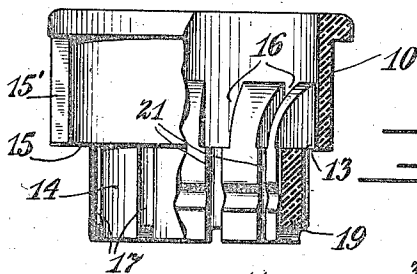


Fig. 8.

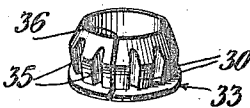


Fig. 10.

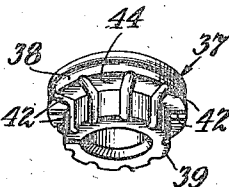
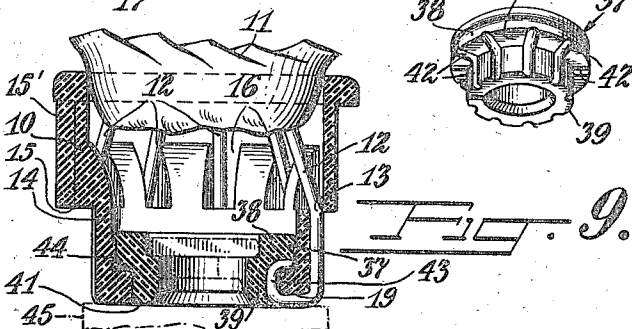
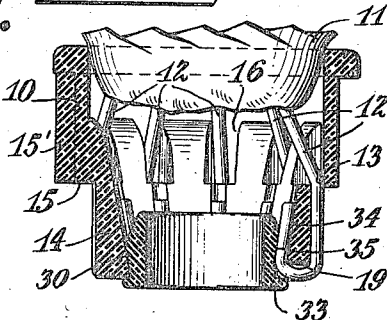


Fig. 7.



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RADIO TUBE BASE

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Application June 28, 1933, Serial No. 677,979

5 Claims. (Cl. 250—27.5)

This invention relates to an electrical vacuum device and relates more particularly to a base construction of the character disclosed in copending application of Harry D. Madden, Serial No. 675,899 filed June 15, 1933 for Radio tube base and assigned to the same assignee as is the present invention.

As set forth in the above mentioned copending application, radio tubes were heretofore made with tubular contact members projecting from a bottom wall of the base and sockets to receive the tubes were provided with contacts to engage the contact pins, the tubes being supported by the bases and held in electrical connection with an electrical circuit.

In the manufacture of radio tube bases having tubular contact pins it was necessary to thread the lead wires of the bulbs through the contact pins or members after which the bases were cemented to the bulbs and a subsequent operation was employed to weld or solder the lead wires to the contact members. The soldering or welding operation consumed an appreciable amount of time and certain other difficulties occurred in making the desired intimate union between the lead wires and the contacts.

The above mentioned copending application discloses the idea of eliminating contacts as heretofore incorporated in a base and in utilizing the lead wires of a bulb as the contact members.

It is an object of the present invention to provide a simple and practical base construction wherein the lead wires are held in fixed spaced relation.

Another object of the invention is to provide a radio tube base wherein the lead wires may be held in with portions exposed on the outer surface of the base and with the end portions securely held within the base.

Another object of the invention is to provide a radio tube base of tubular form whereby lead wires may be conveniently and quickly disposed in their relative positions and the ends thereof may be clamped against the inner wall of the base.

Other objects and advantages of the invention will be more clearly understood by reference to the accompanying drawing in which

Fig. 1 shows a radio tube base having lead wires as contact members arranged and held in accordance with the present invention;

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

Fig. 3 is an enlarged cross sectional view of a base having the lead wires of a bulb positioned

to serve as contacts, the base being shown in position in a socket;

Fig. 4 is a top view of a base constructed in accordance with the present invention with the retainer plug removed;

Fig. 5 is a side elevational view of the base, shown in Fig. 1, partly broken away with the retainer plug removed;

Fig. 6 is a perspective view of the retainer plug for holding the ends of the lead wires in position within the base;

Fig. 7 is a cross sectional view of a modified form of the base wherein the retainer plug is provided with inclined surfaces to clamp the lead wires against the wall of the base;

Fig. 8 is a perspective view of the retainer plugs shown in Fig. 7;

Fig. 9 is another modification of the base showing a retainer plug which is moved to clamping position by a movement outwardly with respect to the tubular base; and

Fig. 10 is a perspective view of the retainer plug shown in Fig. 9.

A practical embodiment of the invention is shown in the drawing and may comprise a tubular insulative member 10, which may be termed the base, and substantially the same form as bases heretofore employed. This base may be of suitable insulative material and may be connected to the neck of a bulb 11 in the usual manner by a basing cement. Lead wires 12 extend from the bulb and, in the construction shown, the type of radio tube employed is provided with nine lead wires, although the present form of base may be employed with a greater or lesser number of such wires. The lead wires extend from the bulb 11 and, as shown in Fig. 3, these wires may extend through apertures 13 disposed in circular spaced relation around the tubular base and intermediate the ends thereof.

The base constructed in accordance with the present invention is provided with a reduced portion 14 forming an annular flange or shoulder 15. A projection or key may be provided in the usual manner to engage with a key in a socket so that the tube will be applied in position to engage the proper contacts in the socket. The apertures 13 extend through the wall of the base at the shoulder and the inner wall of the base is provided with flared out guide-ways 16.

The insertion of the lead wires 12 into the apertures 13 is facilitated by reason of the guide-ways or slots 16. Extending from each of the apertures 13 and disposed longitudinally of the reduced portion 14 of the base are slots or grooves 55

17 to receive portions 18 of lead wires. A lead wire after passing through an aperture 13 is reversibly bent around the edge 19 of the base and upwardly within the base and the inner wall of the base is provided with slots or grooves 21 to receive the ends 22 of the lead wires.

With this construction each lead wire is held in its respective grooves and a retainer member or plug 23 is inserted into the end of the base to press or clamp the ends 22 of the lead wires and hold them in fixed relation. The retainer member 23 is provided with slots 24 and may be split at 25 so as to be sufficiently elastic to be inserted into the base. A flange 27 is provided to engage the lower edge of the base when the retainer member is in its final position.

For the purpose of more securely locking the retainer member in the base, the inner surface of the base may be provided with depressions 28 to receive protuberances 29 on the retainer member. When the retainer member is forced into its locking position, the jaws or protuberances 29 snap into the depressions 28, thus holding the retainer member and tube and securing the lead wires in fixed spaced relation. If it is desirable to make the retainer plug a solid member it may be first heated and softened and then forced into the tubular member.

It will be evident that with the construction shown, a relatively large area of lead wire is exposed to serve for contact purposes. The portion 18 of the lead wire may engage a spring contact 31 of a socket 32 and the lower end or bend of the lead wire may also engage with another portion of contact 31.

Figs. 7 and 8 show a modified form of base construction wherein the lead wires 12 are bent around the lower edge of the base in generally the same manner as that shown in Fig. 3 but a retainer member 33 is provided having surfaces 30 inclined outwardly from the longitudinal axis of the member and the inner surface 34 of the base is inclined outwardly toward the longitudinal axis of the base. The retainer member 33 is provided with notches 35 to receive the end portions of the lead wires. The retainer member 33 may be in the form of a collar and split at 36 to give it a certain amount of resiliency. When applied, the retainer member is forced into the lower end of the base so that the ends of the lead wires are disposed in the notches 35.

As this retainer member is moved into position, the inclined surfaces 30 exert a drawing action on the lead wires and pull it tightly against the wall of the base and, by reason of the oppositely inclined surfaces on the wall of the base and on the surfaces of the retainer member, the latter is held against accidental removal.

Figs. 9 and 10 shows another modified form of base in which the lead wires 12 are also bent around the lower end of the base and a retainer member 37 is provided having an annular flange 36 and a reduced portion 39. The lower edge of the base is provided with an opening 41 of such dimension as to fit the reduced portion of the member 37. The retainer member 37 is provided with slots 42 to receive portions 43 of the lead wires, the ends of which are bent around a shoulder 44 provided on the inner surface of the base. The retainer member, such as shown

in Figs. 9 and 10, is first positioned in the base and then the lead wires are threaded through the apertures 13 and bent around the end of the base. The base, with the bent lead wires, is then placed on a support 45 and a tool is inserted through the retainer member to engage its inner surface whereupon it may be forced, by a pulling action, into position to clamp the ends of the lead wires between the collar 38 and the shoulder 44 of the base.

A base constructed according to the present invention makes it possible to utilize the lead-in wires as contact members in a practical and convenient manner. Inasmuch as the construction of the base proper is of tubular form, it may be molded without difficulty and, by reason of the retainer member, the lead wires may be held securely in place giving a desirable form of base from a commercial standpoint.

Although a preferred embodiment of the invention is shown and described herein, it is to be understood that modifications may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. An electronic device comprising a bulb having lead wires extending therefrom, an insulative tubular base, apertures in the wall of said base, means for holding said base secured to said bulb with the lead wires extending through said apertures and an insulative member within said base for engaging the ends of said lead wires to hold them in fixed spaced relation on said base.

2. An electronic device comprising a bulb having lead wires extending therefrom, an insulative tubular base, apertures in the wall of said base, means for holding said base secured to said bulb with the lead wires extending through said apertures and a resilient member insertable into the bottom of said base for holding the ends of said lead wires.

3. An electronic device comprising a bulb having lead wires extending therefrom, an insulative tubular base, apertures in the wall of said base, means for holding said base secured to said bulb with the lead wires extending through said apertures, an annulus insertable into the bottom of said base, said annulus having grooves to receive the ends of said wires to hold them in spaced relation.

4. An electronic device comprising a bulb having lead wires extending therefrom, an insulative tubular base, apertures in the wall of said base, means for holding said base secured to said bulb with the lead wires extending through said apertures, an annulus insertable into the bottom of said base, said annulus having grooves to receive the ends of said wires to hold them in spaced relation and means on said annulus cooperating with said base to hold the annulus against removal.

5. A base for an electronic device comprising an insulative tubular member having apertures in the wall thereof to receive lead wires of a bulb, means on the inner wall of said member for guiding said wires through said apertures and an insulative member insertable into said tubular member for holding end portions of said wires within said member.