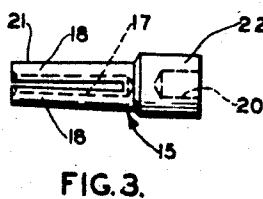
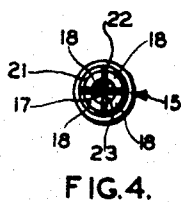
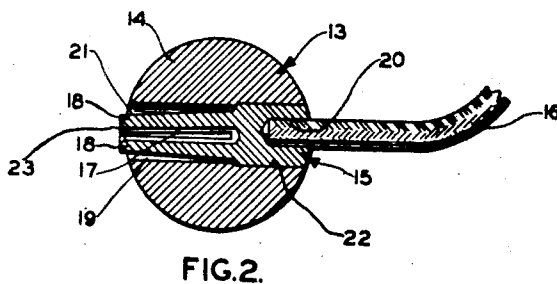
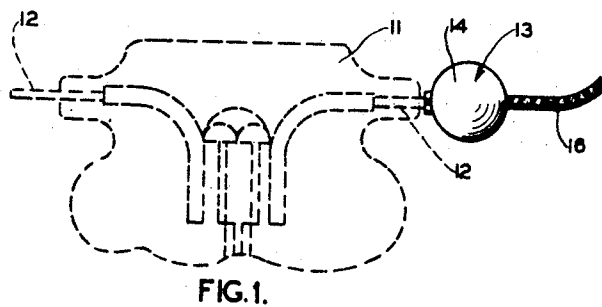


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M. D. BALLER
ELECTRICAL CONNECTOR
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2,415,404



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ELECTRICAL CONNECTOR

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2 Claims. (Cl. 173-363)

(Granted under the act of March 3, 1883, as amended April 30, 1923; 370 O. G. 757)

1 The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to improvements in electrical connectors.

High-power electronic tubes generate considerable heat. If it is not quickly dissipated, the terminals of the tube electrodes may get excessively hot and permanent injury to the tubes may result. As very high voltages appear at the terminals, high voltage corona discharge and arcing may occur.

An object of this invention is to provide a connector which will insure good transmission of electrical energy between a terminal of a tube electrode and a circuit, which will make a secure mechanical union with the terminal so as to be able to withstand considerable movement and vibration, which will rapidly dissipate the heat generated, and which will prevent or minimize arcing.

I accomplish the foregoing by surrounding an electrical contact means with a body of relatively large mass and of good heat conducting material, such as metal, so as to cause a rapid dissipation of the heat through said body and into the circumambient atmosphere. In order to prevent corona discharge and arcing, the exterior of said body should have a surface of full flowing rotund curves, free of protuberances, such as fins, and all surfaces of said body should be smooth and without sharp edges. Thus, the body may be spherical, spheroidal, ellipsoidal, etc. The electrical contact means comprise a plurality of resilient fingers which make a tight frictional fit about the terminal.

Fig. 1 is an elevational view of a connector in engagement with an electrode terminal of a high-power radio tube.

Fig. 2 is an enlarged cross-sectional view of said connector.

Fig. 3 is an elevation of the terminal gripping element of the connector of Fig. 2.

Fig. 4 is a left end view of the terminal gripping element of Fig. 3.

In Fig. 1 a connector 13 is shown attached to one of the electrode terminals 12 of a high-power radio tube 11. The connector 13 comprises a metal sphere 14 and a metal terminal gripping

2 element 15, diametrically disposed within the sphere. All surfaces of the sphere 14 are smooth and without sharp edges.

A cylindrical portion 22 of the terminal gripping element 15 (shown at the right in Figs. 2 and 3) is firmly secured within the sphere 14, by a drive fit, and is provided with an axial cavity 20, into which is soldered a flexible conducting lead 16. The balance of the terminal gripping element 15 has a tapered lateral surface 21, is longitudinally split into four radially resilient fingers 18, and is provided with an axial bore 17. The bore 17 has a slightly smaller diameter than the electrode terminal 12 and has a bevel 23 at its outer end to facilitate insertion therein of the terminal 12. A circumferential space 19 about the tapered surface 21 is provided within the sphere 14 to allow expansion of the gripping fingers 18.

The mass and surface area of the metal sphere 14 allow for rapid dissipation of the generated heat. The smooth surface of the sphere 14, free of sharp edges or any protuberances such as fins, prevents arcing. The fingers 18 securely grip the terminal 12 and make good electrical contact therewith. Although in the drawing I have shown the ends of the fingers 18 extending beyond the surface of the sphere 14, they may be shorter so as to be entirely within said sphere.

I have shown a preferred embodiment of my invention as used in conjunction with a radio tube, but it is obvious that other uses as well as changes or omissions in structure may be made without departing from the spirit thereof.

I claim:

1. A connector for joining an electrical lead to a terminal of an electrical device, comprising a smooth surfaced body, substantially curved throughout, and of good heat conducting material, means to receive and firmly grip said terminal, said means being substantially centrally located within said body and said means being in electrical engagement with said electrical lead, said means including a base portion in good heat transferring engagement with said body and a plurality of radially resilient fingers extending from said base portion and spaced from the interior of said body to allow radial movement of said fingers for slidable insertion therebetween or removal therefrom of a terminal.

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2. A device for mechanically and electrically connecting an electric lead to a terminal of an electronic tube and for dissipating heat from said lead and terminal, comprising a body portion; and contact means; said body portion being a diametrically apertured ball of solid, good heat conducting material, and having a smooth surface, free of sharp edges; said contact means being substantially centrally located within said body and including a base portion in tight, frictional engagement within said body, for good heat transfer from said contact means to said body; said contact means being of good electrical and heat conducting material; said contact means having integral therewith a skirt extending longitudinally from one end within which the electrical lead may be soldered; and said contact means having integral therewith a plurality of radially resilient fingers extending longitudinally from the other end and spaced from the interior of said body to allow radial movement of said fingers, between which fingers said terminal may be slid axially in one direction so

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as to be firmly gripped therebetween and slid axially in the opposite direction so as to be disengaged therefrom.

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