July 28, 1925. 1,547,670

J. W. RADU

VACUUM TUBE

Filed Nov. 8, 1920

Fig. 1.

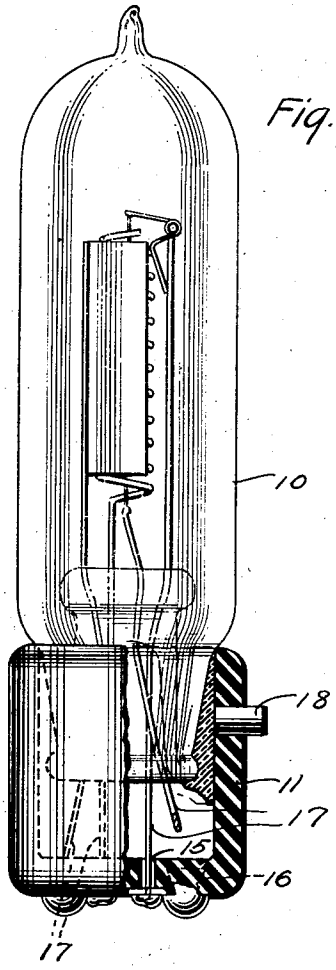


Fig. 3.

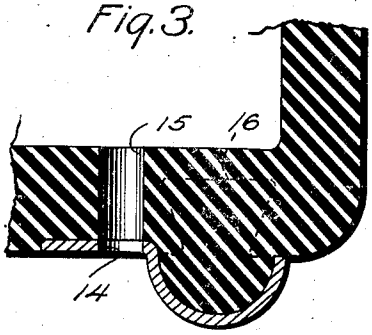


Fig. 4.

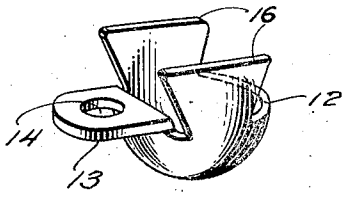
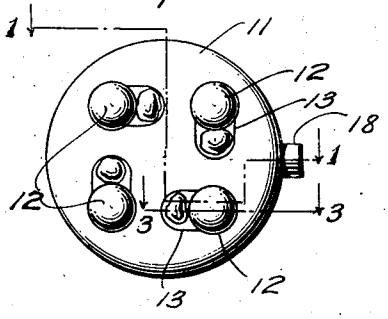


Fig. 2.



Inventor:
John W. Radu.

by J. E. Roberts Atty.

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UNITED STATES PATENT OFFICE.

JOHN W. RADU, OF NEW YORK, N. Y., ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

VACUUM TUBE.

Application filed November 8, 1920. Serial No. 422,433.

To all whom it may concern:

Be it known that I, JOHN W. RADU, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Vacuum Tubes, of which the following is a full, clear, concise, and exact description.

This invention relates to bases for electrical devices such as vacuum tubes, incandescent lamps and the like.

An object of this invention is a base for vacuum tubes or the like which is composed of a single molded piece of insulating material to which terminals for the electrodes of the tube are attached by having portions thereof molded into the base.

Another object of the invention is an improved form of contact terminal.

This invention will be better understood by reference to the following specification and accompanying drawings, wherein is disclosed the invention as embodied in a base for a vacuum tube such as the audion.

In the drawings, Fig. 1 shows a tube with the base attached, the base being broken away on line 1—1 of Fig. 2. Fig. 2 is a bottom view of the base. Fig. 3 is a section on line 3—3 of Fig. 2. Fig. 4 is a perspective view of a contact terminal.

The vacuum tube 10, which may be of any desired type, has the stem thereof sealed off in the usual manner. Fitting over the end of the stem and cemented thereto is the base 11, which comprises a cup-shaped member composed of a single molded piece of insulating material, preferably bakelite.

Arranged on the bottom of the base are terminals 12 which are electrically connected with the various electrodes within the tube in a manner to be later described. Each of these terminals, of which there usually are four, is formed of highly conductive metal and comprises a preferably semispherical hollow portion, the wall of which is extremely thin and a plate 13 extending from said hollow portion. In the plates 13 are provided openings 14 which are in register with apertures 15 extending through the bottom of the base. Each of the terminals 12 is provided with dovetailed members 16 which project into the material of the base. The terminals 12 are set into the material of the base so that the plates 13 are flush with the bottom of the base. Connection is established between the terminals 12 and the electrodes of the tube by the lead wires 17 which pass through the apertures 15 in the bottom of the base and through the openings 14 in the plates 13 of the terminals, the lead wires being soldered to the terminals on the exposed sides of the plates 13.

On the curved surface of the cylindrical portion of the base is provided a pin 18 adapted to engage with a bayonet-slot in a socket to hold the tube in position in the socket.

In the formation of this base the terminals 12 are placed in a mold with their semi-spherical portion fitting in sockets provided therefor and the insulating material is poured into the mold in a molten condition. Means are provided to form the apertures 15 in the base in alignment with the openings 14 in the plates 13. The insulating material fills up the hollow semi-spherical portion of the terminals and completely surrounds the dove-tailed portions, thus firmly attaching the terminals to the base. The insulating material within the hollow portion of the terminal holds the terminal against any lateral pressure that may be exerted on it and also serves as a reinforcement therefor so that the wall of this portion may be made extremely thin, thereby reducing the amount of metal in the terminal. As these terminals are preferably of one of the precious metals, the saving effected by the thinness of the wall allowable because of the reinforcement of the terminals by the insulating material is quite a considerable item.

The base is assembled with a vacuum tube by passing the lead-wires 17 of the tube through the apertures 15 of the base and the openings 14 of the terminals and inserting into the base the neck of the tube to the lower end of which has been applied a coating of cement. The edge of the base brushes the cement along the neck until the entire length of the neck is covered. The wires 17 are then pulled tight and soldered to the plates 13, after which the wires are clipped off.

What is claimed is:

1. A vacuum tube base comprising a cup-shaped member composed of a single molded

piece of insulating material and terminals on the face of said member, each of said terminals comprising a hollow portion projecting from the face of said member and filled with said insulating material, a plate and holding members extending from said hollow portion and embedded in said insulating material.

2. An electrical contact terminal comprising a dome-shaped member, dove-tailed projections extending from said member, and an apertured plate projecting from said member substantially at right angles to said projections.

3. A vacuum tube base comprising an apertured cup-shaped member composed of a single molded piece of insulating material, projections on said member, terminals having portions embracing said projections, each of said terminals having a portion thereof embedded in said insulating material and plates extending from said terminals, said plates having openings therein registering with said apertures in the cup-shaped member, whereby the lead-wires from the tube may be passed through the base and soldered to the terminals.

In witness whereof, I hereunto subscribe my name this 4th day of Nov., A. D. 1920.

JOHN W. RADU.