H. J. NOLTE.

ELECTRODE FOR VACUUM DISCHARGE DEVICES.

APPLICATION FILED AUG. 7, 1918.

1,294,694. Patented Feb. 18, 1919.

Fig. 1.

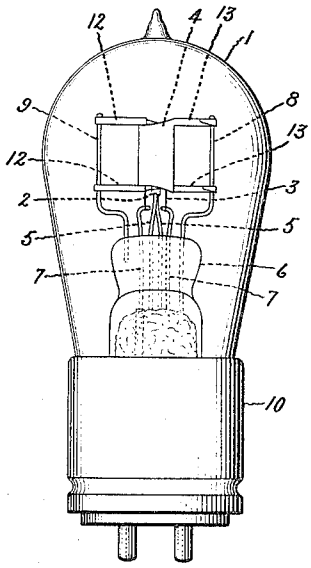


Fig. 2.

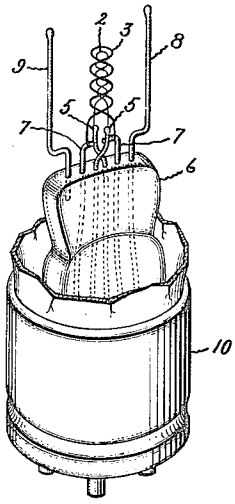


Fig. 3.

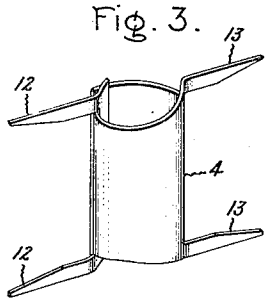
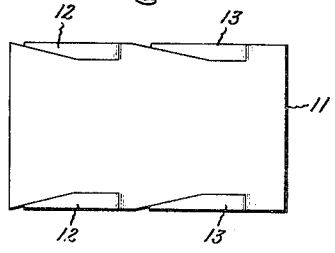


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ELECTRODE FOR VACUUM DISCHARGE DEVICES.

1,294,694. Specification of Letters Patent. Patented Feb. 18, 1919.

Application filed August 7, 1918. Serial No. 248,701.

To all whom it may concern:

Be it known that I, HENRY J. NOLTE, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Electrodes for Vacuum Discharge Devices, of which the following is a specification.

My present invention relates to vacuum discharge devices and particularly to the construction of electrodes for such devices.

One particular form of apparatus in which my invention may be applied comprises an evacuated vessel containing an incandescent cathode in the form of a coiled filament, a grid in the form of a coil of wire surrounding the filament and a cylindrical anode surrounding the grid.

The specific object of my invention is to provide a simple and efficient manner for supporting the anode of such a device so that it will always be maintained in the desired special relation to the cathode and grid. The utility of my invention however is not limited to the particular device mentioned but it may be used to advantage in any form of vacuum discharge device employing a metallic electrode.

In carrying my invention into effect in the present case, I provide two supporting arms for the anode located upon opposite sides of the cathode and grid. At each end of the anode, which takes the form of a thin metal cylinder, I form two narrow strips which are integral with the anode and extend from the surface thereof in diametrically opposite directions. These strips are of such length with relation to the distance between the supporting arms that the ends of the strips may be wound around the arms and welded thereto thus providing a secure attachment of the cylinder to the supporting arms.

My invention will best be understood by reference to the following description taken in connection with the accompanying drawing in which Figure 1 is a view of a completed pliotron in which my invention is employed; Fig. 2 is a view of a pliotron with the bulb and anode broken away; Fig. 3 is a view of the anode and Fig. 4 is a view of a metal sheet from which the anode is constructed showing the manner in which the supporting strips are cut away.

As indicated in the drawing the completed pliotron comprises an evacuated bulb 1 within which are located a cathode 2 in the form of a coiled filament, which is preferably of tungsten, a grid 3 in the form of a coiled wire surrounding the cathode and a cylindrical anode 4 surrounding the grid. Leading-in conductors 5 which are sealed through the stem 6 supply current to the cathode and leading-in conductors 7 which are also sealed through the stem 6 supply current to the grid. The anode 4 is supported by two arms 8 and 9, both of which are sealed into the stem 6 and arm 8 extends through stem 6 and serves to carry the anode current. The leading-in conductors are connected to four terminals on the base 10, all of these terminals not appearing on the drawing.

The anode 4 is constructed of a rectangular sheet of metal 11, as shown in Fig. 4. From each side of this sheet strips of metal 12 and 13 are partly cut away in the manner indicated. The sheet is then bent into cylindrical form and the strips 12 and 13 are bent away from the cylinder so as to extend in diametrically opposite directions therefrom as indicated in Fig. 3. The ends of the strips are then wound around the supporting arms 8 and 9, as shown in Fig. 1, and welded thereto. The construction which I have described provides a simple and efficient support for the anode and one which holds it rigidly in the desired position with respect to the cathode and grid.

While I have described the preferred embodiment of my invention, I do not wish to be limited to the exact structure shown as it will be apparent that many modifications in the precise manner in which my invention is carried into effect as well as in the device in which it is used may be made without departing from the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a vacuum discharge device, an electrode and means for supporting said electrode consisting of a pair of supporting arms and a pair of strips integral with said electrode and extending in opposite directions therefrom, the ends of said strips being secured to the supporting arms.

2. In a vacuum discharge device a cylindrical electrode and means for supporting said electrode consisting of a pair of support-

ing arms and a pair of strips integral with said electrode and extending in diametrically opposite directions therefrom, the ends of said strips being wound around the supporting arm.

3. In a vacuum discharge device, a cylindrical anode and means for supporting said anode consisting of a pair of supporting arms and a pair of strips integral with said anode at each end thereof and extending in diametrically opposite directions therefrom, the ends of said strips being wound around the supporting arms and welded thereto.

4. The combination in a vacuum discharge device of an evacuated receptacle containing a filamentary cathode, an anode and a grid, a pair of supporting arms sealed into the wall of said receptacle and a pair of metal strips integral with said anode and extending in opposite directions therefrom, the ends of said strips being secured to the supporting arms.

5. The combination in a vacuum discharge device of an evacuated receptacle containing a filamentary cathode a cylindrical anode and a grid, a pair of supporting arms sealed into the wall of said receptacle, and a pair of metal strips integral with said anode and extending in diametrically opposite directions therefrom, the ends of said strips being wound around the supporting arms.

6. The combination in a vacuum discharge device of an evacuated receptacle containing a filamentary cathode, a grid and a cylindrical anode, a pair of supporting arms sealed into the wall of said receptacle, and a pair of metal strips integral with said anode extending in diametrically opposite directions from each end thereof, the ends of said strips being wound around the supporting arms.

7. The combination in a vacuum discharge device of an evacuated receptacle containing a filamentary cathode, a cylindrical anode and a grid, leading-in wires for said electrodes and supporting arms for said anode sealed into a single stem projecting into said receptacle and a pair of metal strips, integral with said anode extending in diametrically opposite directions from each end thereof, the ends of said strips being secured to said supporting arms.

In witness whereof, I have hereunto set my hand this 5th day of August, 1918.

HENRY J. NOLTE.