

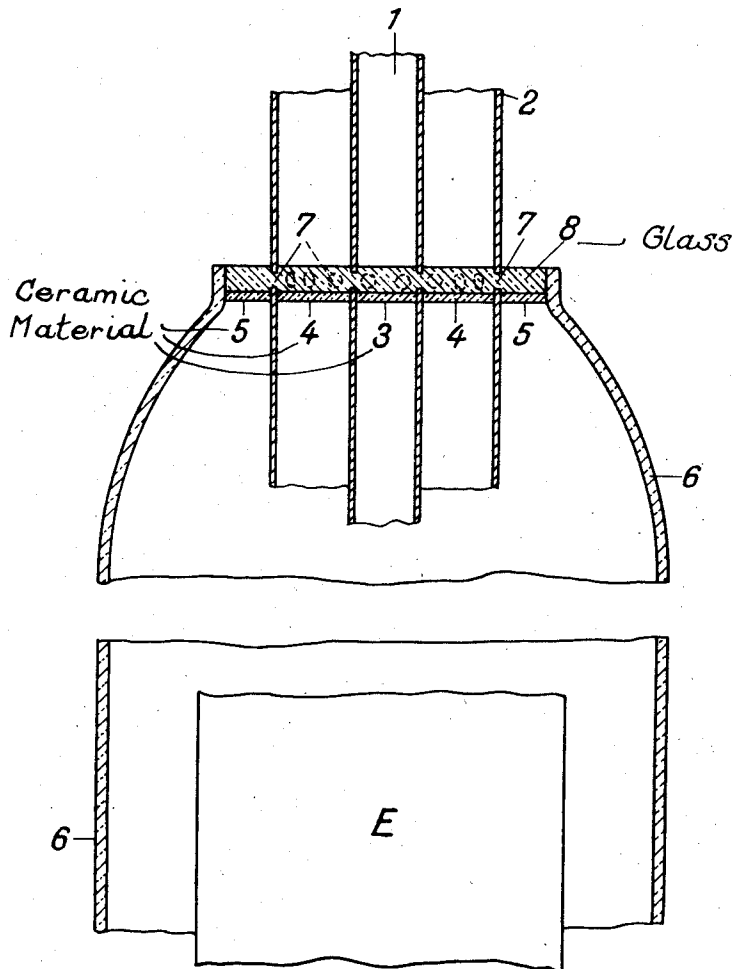
April 16, 1940.

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2,197,511

VACUUM TUBE DEVICE

Filed Feb. 21, 1939



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UNITED STATES PATENT OFFICE

2,197,511

VACUUM TUBE DEVICE

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Application February 21, 1939, Serial No. 257,590
In Germany February 21, 1938

1 Claim. (Cl. 250—27.5)

The present invention relates to vacuum tube devices, and more specifically to electron discharge tubes having coaxially related tubular lead-in conductors for the electrode system thereof.

It is known in connection with vacuum tube devices to employ a coaxial conductor system and to seal such system either to any suitable portion of the tube envelope, or to a closing member intimately joined with said envelope. Such sealing is frequently carried out by the agency of disc-shaped and annular members of glass or of a ceramic material which are placed adjacent the tubular conductors of the coaxial system so that vacuum seals between the different parts may be made by means of a heat treatment. This method, however, suffers under the disadvantage that the vitreous material used for the sealing operation is divided into several individual portions separated from one another by the tubular conductors extended therethrough so that different tensional properties are imparted to the various members. It is thus obvious that the heretofore mentioned conditions might easily introduce difficulties in the device or devices under consideration.

The present invention has for its object to eliminate drawbacks of the aforementioned kind. The tubular conductors are, according to the main feature of my invention, provided with a number of apertures circumferentially arranged thereon in radial relation to each other and in one plane so as to allow the vitreous material applied on either surface of the conductors to flow together so as to constitute a continuous vitreous layer of uniform properties.

My invention will be more readily understood from the following description, reference being made to the accompanying drawing which diagrammatically shows one embodiment thereof in an exaggerated scale.

The tubular conductors 1 and 2 of the coaxial conductor system shown in the drawing are connected in any suitable manner with the electrodes of the electrode system E. A disc 3 of ceramic

is placed in the central opening of the smaller conductor 1, while ceramic members 4 and 5 of annular shape are provided between the two conductors and around the outer surface of the larger conductor 2, respectively. The last mentioned annulus 5 is sealed to the upper rim of the tube envelope 6. The three members 3, 4 and 5 are fixed in the same geometric plane. The tubular conductors 1 and 2 may be chrome-iron pipes, for example.

As taught by the main feature of my invention, each conductor of the coaxial system is provided with a number of apertures circumferentially arranged in radial relation to each other in one geometric plane. These apertures are indicated at 7 in the accompanying drawing. A fluid vitreous sealing material poured onto the upper surface of either of the members 3, 4 and 5 for producing a vacuum seal between the several members of metal and ceramic material is allowed to flow through these apertures so as to form a continual undivided glass coating 8 of uniform tensional properties, which will not give rise to any difficulties of the heretofore mentioned nature.

What is claimed is:

A vacuum tube comprising an envelope, an electrode arrangement therein, a coaxial conductor system having an inner and an outer tubular conductor electrically connected with said electrode arrangement, and means to affix said conductor system to said envelope comprising a disc of ceramic material in said inner conductor at right angles to the axis thereof, a first annular ceramic member in the space between said inner and said outer conductor, a second annular ceramic member arranged about said outer conductor and in one plane with said disc and said first annular member, a row of radial apertures in each of said tubular conductors located in a further plane parallel with and slightly above said first mentioned plane, and a layer of vitreous material on the upper surfaces of said disc and said annular members in the said further plane and extending through said apertures.

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