

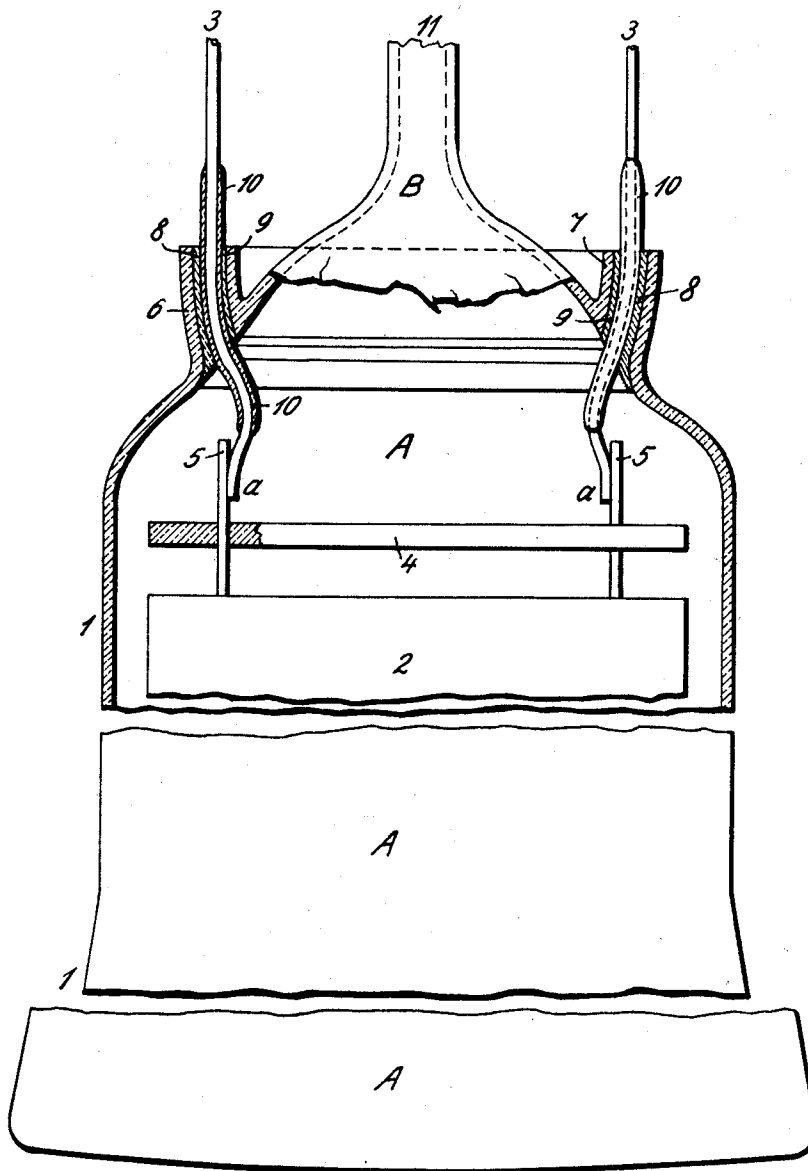
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BRAUN TUBE

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BRAUN TUBE

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The present invention relates to Braun tubes, and more specifically to improvements in or relating to the electrode lead-in conductors which are extended through the wall of the vacuum vessel of such tubes.

It is a well known expedient in connection with conductors which are to be fixed in the wall of a vacuum vessel in a vacuum seal fashion to use a wire which is preparatorily covered with a coating of a vitreous material, such as glass, and to place this glass-covered wire in its relative position in an aperture of the vacuum vessel, whereupon the material of the vessel and the glass coating about the wire are intimately united with one another in a melting process.

The invention makes use of the known glass-covered lead-in conductors, and has for its object to fix the entire number of electrode lead-in conductors in one annular portion formed in the throat of the Braun tube, so as to avoid the necessity of providing one separate aperture in the wall for each individual lead-in conductor. It is thus possible by means of the present invention to eliminate the heretofore known method which was suitable merely for fixing one or two lead-in conductors.

The invention will be more readily understood from the following description taken in conjunction with the accompanying drawing, the single figure of which is an exaggerated schematic cross sectional view of one embodiment according to the invention. The vacuum vessel of the Braun tube embodying the invention has partially been broken out in the drawing.

In the figure, 1 denotes the vacuum vessel of a Braun tube. The cathode ray producing and deflecting means are indicated at 2 in a pure schematic manner for the sake of simplicity and, by the same reason, only two of a plurality of electrode lead-in conductors 3 are shown. Each electrode of the cathode ray producing and deflecting means 2 is provided with a connector 5 and all of said connectors are fixed in a plate or disc 4 of a ceramic substance. Each connector 5 is welded to its appertaining lead-in conductor at a.

The vacuum vessel 1 consists of two portions, A and B of glass. One end of the portion A is drawn down to form a throat 6, and the portion B has an annular extension 9 which is adapted to fit the throat 6. The inner surface of this throat 6 and the outer surface of the annulus 7 are both coated with a vitreous melt and, moreover, the appropriate portions of the leads 3 are likewise provided with a coating 8 of glass. The glass

coatings 8, 9 and 10 are fused together with one another as shown to the left in the drawing. The individual glass coatings prior to the fusing operation are shown to the right of the drawing. It is thus obvious that the throat 6 and the extension 9 together form an annular member by means of which the leads 3 are fixedly mounted.

The above described arrangement may be manufactured in the following manner: The cathode ray producing and deflecting means 2 are assembled to one unit which is inserted in the portion A of the envelope or vessel 1, and the corresponding end thereof is drawn down to a suitable smaller diameter and cut so as to provide a throat 6. The lead-in conductors 3 are then welded at a to their respective electrode connectors 5, whereupon the glass-covered portions of the leads are bent toward the glass coating 8 of the throat 6 and fused thereto. This fusing may be a provisional step which merely serves for preliminarily obtaining a sticking between the leads 3 and the throat 6. The preparatorily tapered portion B is now brought into position with its annular extension or collar 7, thus facing the throat 6 and the leads 3, whereupon the glass portion 9 which, as mentioned above is applied on the outer surface of the extension 7 is preparatorily fused to the glass coating 10 of the leads 3. These provisional fusions between the glass coatings 8, 10 and 9, 10, respectively, are then completed to a perfect vacuum seal and at the same time the tapered end of the vessel portion B is drawn down so as to provide an evacuating-pipe 11. It is on the other hand possible to partially remove the end of the portion B remote from the extension 35 or collar 7 and to attach a complete evacuating pipe to the remainder of portion B in any suitable manner.

What is claimed is:

1. A method of manufacturing Braun tubes which consist of two portions, one of which is shaped to provide a throat of annular shape, the other having an annular extension which is received by the throat portion which method comprises the following sequence of steps: cutting the tapered end of one of the portions of said Braun tube vessel to form a throat, applying a vitreous melt to the inner surface of said throat, placing glass-coated lead-in conductors in their appropriate positions relative to said throat, provisionally fusing said conductors to said throat, placing another glass-covered portion of said Braun tube vessel in position relative to said throat, and fusing said glass coatings and said vitreous melt to a vacuum seal.

2. A method of manufacturing Braun tubes which consists of two portions, one of which is shaped to provide a throat of annular shape, the other having an annular extension, which is received by the throat portion, which method comprises the following sequence of steps: cutting the tapered end of one of the portions of said Braun tube vessel to form a throat, applying a vitreous melt to the inner surface of said throat, placing glass-coated lead-in conductors in their appropriate positions relative to said throat, provisionally fusing said conductors to said throat, placing another glass-covered portion of said Braun tube vessel in position relative to said throat, fusing said glass coatings and said vitreous melt with said lead-in conductors there-between to a vacuum seal and drawing down the remote end of said attached portion of the Braun tube vessel to form an exhaust tube.

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