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FLEXIBLE CONNECTION BETWEEN TWO ALIGNED CONDUCTORS
ONE OF WHICH IS SEALED INTO THE GLASS
WALL OF A DISCHARGE TUBE
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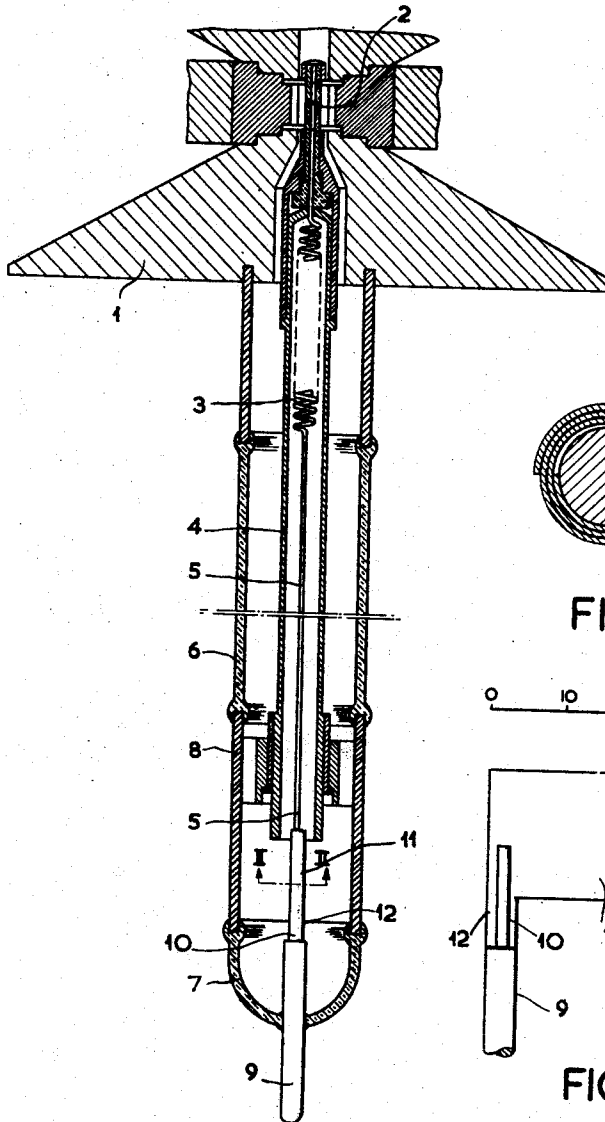


FIG. 1

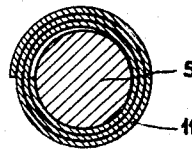


FIG. 2

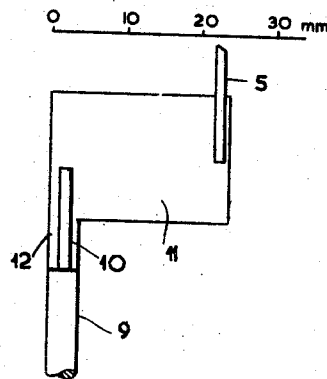


FIG. 3

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FLEXIBLE CONNECTION BETWEEN TWO ALIGNED CONDUCTORS ONE OF WHICH IS SEALED INTO THE GLASS WALL OF A DISCHARGE TUBE

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1 Claim. (Cl. 313-278)

This invention relates to flexible connections between two aligned conductors, one of which is sealed into the glass wall of a discharge tube and the other of which can be moved with respect to this wall in the direction of its length.

The above-mentioned structure occurs inter alia with the current-supply conductors for the axially-supported thermionic cathode magnetron. The supply conductors for the thermionic cathode then comprise a tubular member which is rigidly connected to the wall and carries the thermionic cathode and also, in the interior of this member, a rodlike conductor which constitutes the second supply conductor. Due to the influence of the thermal expansion of the cathode, the said rod like conductor may undergo considerable axial displacements so that it cannot be rigidly connected to a lead-through conductor sealed into the glass wall. The space for accommodating known flexible connections between the inner conductor and the lead-through pin is usually too small. Such a problem of a flexible connection between two conductors may also occur in other structures.

According to the invention, a flexible connection between two aligned conductors, one of which is sealed into the glass wall of a discharge tube and the other of which can be moved with respect to this wall in the direction of its length, comprises a narrow strip of sheet metal which is rolled onto one conductor after being secured thereto, whereas the other conductor is secured to a projecting tongue of the said strip and extends to approximately halfway the rolled portion.

The structure according to the invention provides a connection which allows of axial movements with very weak forces and which has proper rigidity in a direction at right angles to the conductors.

In order that the invention may be readily carried into effect, it will now be described in detail, by way of example, with reference to the accompanying drawing, in which:

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FIG. 1 shows a longitudinal section of the supply conductor for a thermionic cathode of a magnetron for 4 mms. of wave-length;

FIG. 2 shows a cross-section of the flexible connection, and

FIG. 3 shows the unrolled metal strip with the conductors secured thereto.

In FIG. 1, reference numeral 1, indicates the incorporated pole-piece of a magnetron cathode 2. The heater body situated beside the cathode 2 is indicated by 3. From this heater body, a molybdenum tube 4 and a molybdenum rod 5 lead to a cylinder 8 of Fernico-material which is sealed between glass cylinders 6 and 7, and to a lead-through pin 9 in glass cylinder 7, respectively. A flexible connection comprising a rolled-up strip of molybdenum sheet 11 of 50 microns thickness is provided between a thinner end 10 of the pin 9 and the rod 5. The dimensions of the said strip follow from the graduation shown in FIG. 3. The rod 5 is welded in position before rolling up and the pin 10 is secured, after rolling up, to a tongue 12 of the strip 11.

FIG. 2 is a cross-sectional view of the flexible connection. The distance between the rod 5 and the pin 10 in the flexible connection need be no more than a few tenths of a millimetre.

What is claimed is:

In an electron discharge tube, a pair of aligned conductors one of which is sealed in the wall of the tube and the other of which is moveable longitudinally relative to said wall, and means connecting said conductors to permit longitudinal movement of the said conductor without lateral movement, said means comprising a strip of sheet metal secured to and tightly rolled about one conductor to prevent lateral movement thereof when said latter conductor is moved longitudinally relative to the first conductor, said strip having a projecting tongue to which the other conductor is secured, said rolled up strip having a given axial length, said other conductor extending approximately along half the axial length of the rolled-up strip of sheet metal.

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