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LEADING-IN OUTFIT FOR ELECTRIC VESSELS

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Fig. 1

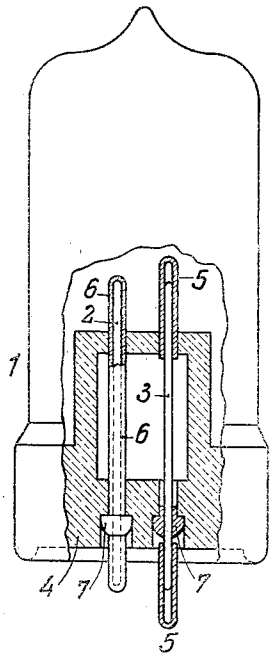


Fig. 2

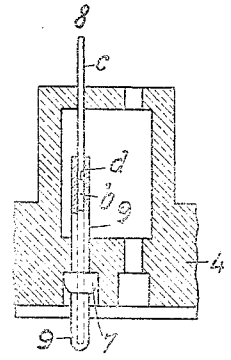
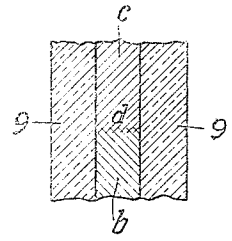


Fig. 3



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LEADING-IN OUTFIT FOR ELECTRIC VESSELS

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3 Claims. (Cl. 250—27.5)

As is well known, the insulation between the leading-in conductors of vacuum vessels is impaired by metal deposits forming between these leads. Such deposits are in general due to the well-known getter material employed for absorbing gas remainders in the vacuum vessel. This disadvantage can be overcome by means of sheet metal screens or the like, suitably arranged in the vessel.

Sometimes however, especially in the manufacture of ceramic vacuum vessels having leads fastened by means of sealing melts, so-called seals, it is found that the insulation between the leads is impaired even if no getter material has been deposited between them.

This phenomenon is attributable to the fact that the metal oxides existing on the leads are vaporized when the leads are being fastened by the application of the seals, these in general being of a material of high melting point. The oxides so vaporized are then deposited around the seal, that is, on the insulating body or base into which the leads are sealed. If now the vacuum vessel, so fitted with the leads, is heated in a hydrogen atmosphere or in a vacuum chamber, the oxide deposited on this socket is more or less reduced to pure metal, thus severely impairing the state of insulation of the leads. In particular, the places so affected will be a source of brisk glow discharges if potentials amounting to some thousands of volts are active between the respective electrodes.

The invention provides for preventing the vaporized metal oxides from forming deposits on the insulating body or base in which the leads are mounted.

The invention will be understood from the following description, reference being had to the accompanying drawing in which:

Fig. 1 is a partially sectioned view of one embodiment of the invention, Fig. 2 is a fragmentary sectional view illustrating a modification of the arrangement shown in Fig. 1, Fig. 3, drawn to a larger scale than Figs. 1 and 2, is a fragmentary sectional view representing a detail of Fig. 2.

In Fig. 1, 1 denotes a vessel, for instance a vacuum vessel, which has an insulating base 4 made of ceramic material, for example, and in which leads 2, 3 are fastened by means of seals 7. The leads 2, 3 may be molybdenum wires, for instance. The bulb or envelope of vessel 1 may likewise be of ceramic material, but may consist instead of any other suitable material, as is well-known with devices of this kind.

When melting the material from which the seals 7 are produced, the high temperatures necessary to such end cause the oxides present on the leads 2, 3 to evaporate. Such oxides will then form deposits on base 4.

In order to avoid this drawback, tubular hoods 5 may be inserted over the leads, as shown in connection with lead 3, Fig. 1. Such hoods are fitted to both ends of the leads, that is to say, one hood is arranged inside of vessel 1 while the other is arranged outside thereof. The hoods are of a material whose surface is not vaporizable. For example, they may be of nickel. The hoods 5 absorb the vaporized oxides and are removed from the lead after this has been fixed by means of seal 7.

Instead of such hoods 5 a coating 6 the surface of which is likewise not vaporizable may be applied to the lead. This coating, shown in connection with lead 2, Fig. 1, may be of glass and in such case is removed at the desired places after the lead has been sealed into base 4. Alternatively, coating 6 may be of a suitable metal, preferably a precious metal.

The arrangement represented in Figs. 2 and 3 has a lead 8 composed of two conductors *b*, *c*. Conductor *b*, fastened in base 4 by seal 7, is of molybdenum or another material having a vaporizable oxide surface, while conductor *c* is of a material having no such surface. For instance, conductor *c* may be of nickel. The conductors *b*, *c* may be connected together at *d* by butt welding, as will appear from Fig. 3. Conductor *b*, having a vaporizable surface, may be provided with a coating 9 of glass or another suitable material, in order to prevent the vaporized oxides from impairing the state of insulation in the manner herebefore explained. Coating 9 preferably extends beyond the weld *d*.

The arrangement shown in Figs. 2 and 3 thus makes use of the fact that materials having a vaporizable oxide surface, as is the case with conductor *b*, are well adapted for the application of the seals 7. In addition, conductor *c* not being of such a material need not be provided with covering means such as hoods 5 or coating 6 shown in Fig. 1, and therefore allows the requisite constructional elements to be mounted on lead 8, before this is sealed into the base 4.

The invention is applicable, for instance, to vacuum switches, electronic tubes, such as Braun tubes, or any other electric discharge vessels.

What is claimed is:

1. A leading-in wire structure for a vacuum vessel comprising a member of insulating material having leading-in conductors passing there-

through each of said conductors being composed of a first part having a vaporizable oxide surface and a second part free from such surface, serially connected, said first part being fixed to said member by a vacuum tight seal at a point intermediate its ends, and a protective means free from vaporizable oxide surface extending from said seal to a point intermediate the ends of said second part.

2. A device according to claim 1, wherein the two parts are united with each other end to end.

3. In the manufacture of electric devices which comprise a vessel and leads sealed into an insulating wall portion thereof said leads having a vaporizable oxide surface, the method that consists in covering the ends of said leads with tubular hoods having no oxide surface, sealing the leads into said wall portion and thereafter removing at least a portion of said tubular hoods.

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