

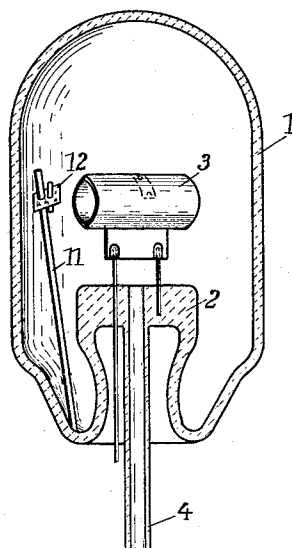
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METHOD AND ARRANGEMENT FOR DISPERSING MAGNESIUM IN VACUUM TUBES

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METHOD AND ARRANGEMENT FOR DISPERSING MAGNESIUM IN VACUUM TUBES

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The invention relates to a method and an arrangement for dispersing magnesium in vacuum tubes.

In the evacuation of air from amplifying tubes for the purposes of wireless telegraphy it is customary with a view to obtaining a high vacuum to disperse magnesium or such like whereby the gas residues still in the tube are to be fixed. Hitherto people have not paid any particular attention to this process, but have relied on the property of magnesium to bind considerable residues of gas. Experiments have, however, shown that a complete absorption of the gas residues does not take place in all circumstances but that it depends to a large part on a correct method if the desired success is to be obtained. Hitherto the magnesium to be dispersed has been spread upon a part of the system made to glow during the process of air-evacuation, as a rule the anode of the amplification tube, either direct or indirect by placing upon it a heat conductive medium, for instance a strip of nickel plate. The dispersal of the magnesium was then effected by heat conduction and radiation from the glowing anode. I have, however, discovered that on these methods being applied the glowing anodes and system-elements are still evolving comparatively large quantities of gas at a time when the dispersal of the magnesium is already taking place. In such cases the vacuum obtained after the dispersal is generally by no means complete.

The reason for this is to be found in the fact that the dispersal of the magnesium presupposes a comparatively high simultaneous glow of the system-elements as the magnesium is made to disperse by heat conduction or radiation from the anode.

The improvement of this method according to the invention is illustrated by the accompanying drawings, showing in Figures 1, 2, and 3 three modifications of my invention, in which 1 is the carboy, 2 the press, 3 the system of the amplifying tube, 4 the pump-shaft. The tube is imagined to be seated on the pump. It has now been usual, hitherto, to fix the magnesium to the anode either in the shape of a ring or of a

piece of ribbon, as shown by the dotted lines. If such is done the magnesium will, of course, disperse at the moment when the anode reaches red-heat. At that time, of course, degasification of the anode is far from complete.

An improvement according to my invention is obtained by the magnesium not being fixed direct to the anode, but to the point 5 of a short stem 6 which generally consists of nickelplate and is welded on to the anode 3. Under these conditions it is possible to bring anode 3 to bright incandescence and thus to accomplish an extensive extraction of gas before by heat conduction across stem 6 the magnesium 5 reached red heat and evaporation. This process, however, also has the drawback that during the dispersal of the magnesium the anode 3 reaches a higher temperature than was the case during the preceding part of the pump process. This had to be so of necessity as otherwise the magnesium ring or ribbon 5 would already have evaporated at an earlier stage. Since, however, with the increase in temperature of the anode the gas discharge will always set in afresh, it is in this connection also unavoidable that just at the moment when the piece of magnesium evaporates and binds the gas-residues, the anode 3 in consequence of the increased heat necessary for the evaporation of magnesium-piece 5 again discharge considerable quantities of gas. According to my invention this evil is removed by the piece of magnesium being movably arranged in the tube.

In this respect it has been proposed that the vaporizable substance has been arranged as a small perforated disc at a holder connected with the anode. The piece of the vaporizable substance may slide on the holder and may be brought close up to the anode or removed from it.

According to my invention the motion of the vaporizable substance is attained by the following manner being illustrated in the drawing. The piece of vaporizable substance is fixed to the point 12 of a small strip of mica 11 which is found movably in the tube and by the tilting of which in hinge-like manner the magnesium-piece may be

brought close to the anode 3 if the dispersal of the magnesium is intended. After the dispersal of the magnesium merely the mica piece 11 remains in the tube which exercises
5 no harmful influence. You may, of course also select a more complicated construction. It is only of great importance that a local shifting of the piece of magnesium relatively to a glowing system-element is effected in
10 such a manner that during the degasification of the system-element a considerably higher temperature may be used than is necessary in order to effect the dispersal after the piece of magnesium has been brought close up to
15 the anode.

I claim:

An electrical device having an electrode in an evacuated container, a movable mica strip within said container, said strip being
20 supported at its lower end by said container, a vaporizable metal carried by the upper end of said strip whereby said vaporizable metal may be moved into contact with said electrode by tilting said container.

25 In testimony whereof I have affixed my signature.

SIEGMUND LOEWE.

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