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ELECTRON TUBES
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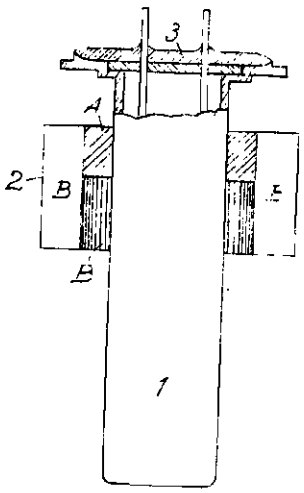

FIG. 1

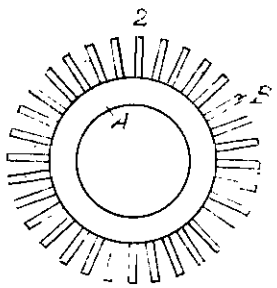

FIG. 2

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ALIEN PROPERTY CUSTODIAN

ELECTRON TUBES

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Electron tubes when employed for high power entail the difficulty that a great quantity of heat must be conducted away from the electrodes. In the case of tubes having a metal bulb this bulb usually serves as anode and thus insures comparatively good heat radiation.

Tubes of this kind are desired to be as small as possible and yet to be suitable for high power. The high temperature acquired by the bulb or anode may happen to exceed the softening temperature of the glass seal by which the cover for the bulb and the current leads mounted in the cover are secured to the bulb, and in such case can endanger the seal.

According to the invention a cooling device made of a light metal is inserted over the bulb and positioned near the seal, as will be understood from the following description and the accompanying drawing, in which

Fig. 1 is a sectional view of an example of electron tubes as provided by the invention, Fig. 2 is an end view of the cooling device.

The tubular metal bulb is designated 1. 2 denotes the cooling device, 3 the seal.

The cooling device 2 is shown to cover part of the bulb but may be arranged to cover the entire surface thereof. The cooling device acts to protect the seal 3 from softening on the bulb becoming hot. The load capacity of the electron tube hence is greater than heretofore.

The cooling device 2 can be shrunk onto the metal bulb or may be fixed to it in any other suitable manner, and it is made of a light metal of the kind having a very good heat conductivity and a high heat radiation. The cooling device hence may be comparatively small and may be accommodated in shape to the bulb, or may be given any other desirable form. Since furthermore the cooling device may be located near the seal 3, electron tubes of the novel construction may be very small. Also, two or more sealing operations may be effected one after another and in the neighbourhood of each other without interfering with one another.

It has been found that the cooling action is particularly good if the cooling device 2 is a tubular body or ring A formed with cooling fins or vanes B which are longer than this ring, so that each vane B in part freely extends along the bulb, as will be seen in Fig. 1. Preferably, the bulb is somewhat conical at the zone where ring A is shrunk onto it. Ring A may be short as shown because the cooling device is made of a material to which a good heat conductivity is peculiar and which therefore requires only a comparatively small part of the device 2 to contact with the bulb.

This material may be a magnesium alloy designated as "Elektron" and which has proved to be most suitable for this purpose, as it is easy to tool and mouldable by die casting, thus saving material.

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