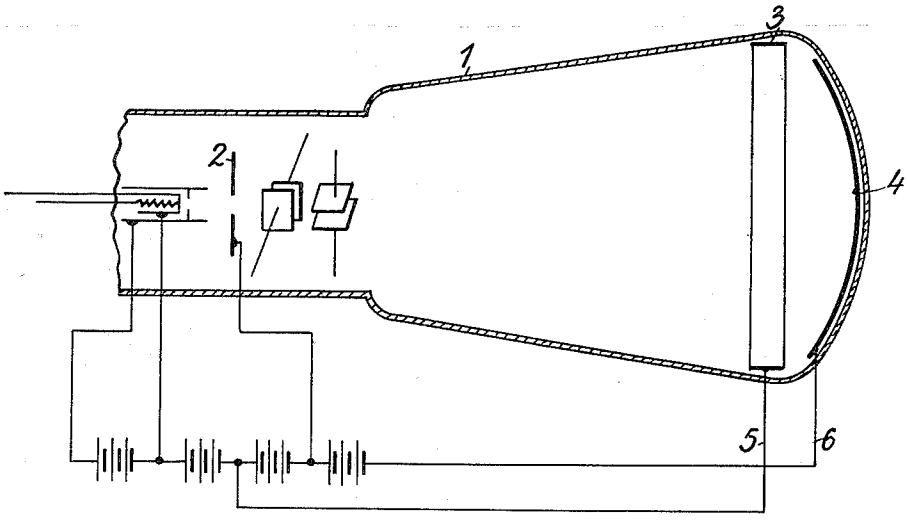
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BRAUN TUBE AND METHOD OF OPERATING THIS TUBE

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BRAUN TUBE AND METHOD OF OPERATING THIS TUBE

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2 Claims. (Cl. 250—27)

It is already known to metallize the luminous screen of Braun tubes, and to connect up the same with a constant potential. On the other hand it has already been proposed to furnish the wall of the Braun tube with a metallic coating, and to earth this coating or to link up the same with the maximum potential occurring in the tube and in this case to use it after-acceleration anode.

The applicant has found that both in the case in which the conductive wall coating as well as in the case in which the metallized screen is employed as after-acceleration anode unsharp points are formed. If furthermore the coating—such as usual heretofore—extends to within close proximity of the first anode, to high potential thereof exerts undesirable effects on the ray.

The widening out of the image point may in these cases be explained by absence of the return-current electron cloud, which also exerts a certain concentrating effect.

The applicant has found that the concentrating effect of the return-current electrons may be wholly replaced by the effect of a conductor raised to a suitable potential which is weakly negative in relation to the ray. This conductor may conveniently be constructed in the form of a preferably narrow metallic strip (for example, silvered strip) arranged on the wall of the tube. The width of the conductor is so chosen that the field thereof exerts no noticeable effect on the ray in the vicinity of the anode. In the case of a tube of 30 cm. in length, 6 cm. diameter of the neck and 18 cm. diameter of the bottom the width of the strip in accordance with the invention can be selected at 5 cm., i. e., at approximately 1/6 of the length of the tube.

If now this conductor is raised to a suitable potential, which is weakly negative in relation to the ray, the image screen may be tapped without an increase taking place in the width of the image point.

According to the invention, the metallized image screen is now employed as after-acceleration anode (second anode) by the application of a suitable high positive potential.

The following potentials in operation have been found suitable in connection with a tube of the dimensions set forth above:

1st anode=1000 volts

metallized auxiliary conductor=900 volts

2nd anode=3000 volts

Naturally the tubes according to the invention may also be operated with other potentials; these potentials, however, must always be selected in such fashion that the auxiliary conductor always possesses a negative potential in relation to the ray.

It is to be observed that the auxiliary conductor should not be made too weakly negative in relation to the after-acceleration anode, as otherwise the ray will be bent off in the vicinity of the auxiliary conductor, which in the case of television tubes takes effect in the form of a rounding of the image.

The tube according to the invention is of particular importance for use with so-called residual gas filling, i. e., a gas pressure of not more than 10^{-4} mm.

A form of embodiment of the tube according to the invention is illustrated by way of example in the drawing. In the latter 1 is the body of the tube, 2 the first anode, and 3 an auxiliary conductor according to the invention, which may be arranged in the vicinity of the image screen, possesses a weakly negative potential in relation to the ray, and is made so narrow that it is unable to exert any disturbing effect on the ray in the vicinity of the first anode. 4 is the metallized image screen, which in accordance with the invention is employed as after-acceleration anode. 5 and 6 are the leads passing to the auxiliary conductor and the image screen.

The most favourable potentials vary in respect of different forms and sizes of tubes, and may be adjusted without difficulty in each single case.

I claim:

1. In combination a Braun tube comprising a cathode, an anode, means to concentrate the cathode ray, means to deflect the cathode ray, an auxiliary conductor disposed on the wall of said tube and a metallized fluorescent screen disposed at the end of said tube removed from the cathode; and a high voltage source; said metallized screen being connected to a point of high potential of said source, said anode being connected to a point of middle potential of said source, and said auxiliary conductor being connected to a point of said source, the potential of which is lower than that of the connecting point of said anode.

2. In combination a Braun tube comprising an anode, a fluorescent screen, and a metallic coating disposed between said anode and said fluorescent screen; and a high voltage source; said anode being connected to a point of said source, said metallic coating being connected to a point of said source, the potential of which is lower than that of the connecting point of said anode.

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