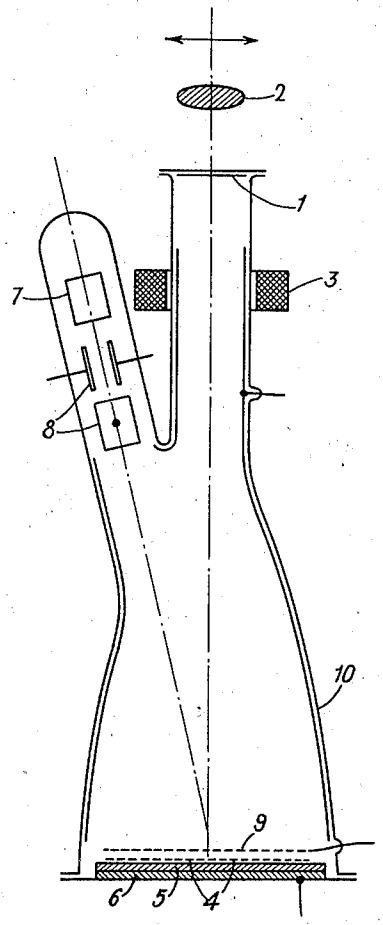
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MOSAIC ELECTRODE FOR TELEVISION TUBES

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MOSAIC ELECTRODE FOR TELEVISION TUBES

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2 Claims. (Cl. 250—27.5)

The present invention is concerned with a further development of the electron miscroscope type of television transmitter or televisor disclosed in the patent application of Fritz Schroter, Serial 32,768, July 23, 1935, and it concerns, more particularly speaking, a simplified form of construction of the surface of the screen plate comprised in the arrangement therein disclosed, together with changes in the assembly and mounting of the system of the tube associated therewith.

The above mentioned patent application disclosed means for the scanning of the picture at the televisor or transmitter end (predicated upon the use of cathode-rays) of the following kind: Upon a photo-electrically activated cathode, all or part of the picture to be transmitted is projected or imaged by the aid of an optical device. The photoelectric cathode, by the aid of an electron optical system is imaged upon a row of dots or a screen plate, the constituent elements of which consist of a plurality of insulated collector or absorber electrodes. To the said screen plate or grate, or the said row of dots are thus imparted charges corresponding to the brightness values of the pictures, and these charges, by scanning with an independent cathode-ray pencil, are evaluated from the posterior face of the screen or grate surface for the purpose of transmission.

The arrangements disclosed in the above mentioned patent application may be modified in this manner that the screen surface is scanned from the anterior side or face rather than posteriorly. A schematic representation of a tube thus modified is illustrated in the single figure of the drawing.

The picture projected upon the photo-active layer 1 by the aid of an optical system 2 is thrown, by the agency of an electron-optic system 3, upon a grate or screen plate 4. The scanning of the surface of the said screen is accomplished from the same side by the agency of a cathode-ray pencil which is generated and focussed in the system 7, while being deflected by the deflecting system 8 in the customary way. For the collection of the secondary electrons, in analogy with the electrode 13 mentioned in the co-pending patent application above referred to, there serves a reticulated electrode 9. In this mode of scanning, the construction of the screen surface may be simplified to an essential degree. Whereas the construction of the grate or screen plate surface disclosed in the above mentioned patent application involves a problem of precision mechanics that is but hard to solve seeing that for the construction of the same is required a metallic electrode into which pins are inserted, each one of which is insulated in reference to the electrode, the screen elements according to the present invention, by a method hereinafter to be disclosed and described in more detail, may be brought upon a thin coherent (unbroken) insulation layer or coat 5 which, upon the opposite face, is bounded by an unbroken conducting coat 6. This corresponds eactly to the electrode 9 in the earlier patent application. Now, for the manufacture of this arrangement, the following procedure is particularly suited:

A coherent, unbroken metallic coat, e. g., a layer of silver, is covered with an insulating binder or cement, say, consisting of dilute waterglass, upon which is thereupon dusted fine metallic powder in such measured quantities that, after the drying of the binder or cement, there will remain sufficiently large insulating intervals or gaps. The metallic powder, if desired, could also be caused to sinter in upon the insulation layer.

Another method to make grate or screen elements consists in that upon an insulation coat is applied a thin and uniform film of metal, say, silver, whereupon the said metal coat is heated to the fusion point, with the result that the metal upon the insulating substratum or support is caused to coalesce into tiny spherules, the latter constituting the screen elements.

For the preparation of the screen elements there is suited also a daguerreotype procedure. A metal plate consisting, e. g., of aluminum, is provided by oxidation with a thin layer or film of insulation. On top of the latter is precipitated or deposited a tenuous film of metal and then exposed to the action of halogen vapors resulting in, for instance, iodization. The coat possessing photographically active or responsive properties which is thus made is thereupon exposed by means of a dotted screen known from the art of autotypy by a printing process, then developed and fixed so that at the exposed points there result tiny screen elements consisting of pure silver.

Another feasible process is to produce the screen elements upon the insulating layer by means of metallization by the interposition of a pattern or templet. Upon the insulation layer is laid, for instance, a metallic network or gauze (reticulum) or else a grate obtained by an autotype process whose openings are equal to, or smaller than, the diameters of the elementary picture points or areas. The screen elements are

obtained by reason of the fact that the pattern or stencil as well as the subjacent insulation layer are exposed to the action of metallic vapors, say, inside a high vacuum or by way of cathode spatter or disintegration.

Having disclosed my invention, what is claimed is:

1. The steps and method of preparing a photosensitive mosaic electrode upon a metallic plate electrode which comprise oxidizing one surface of the plate electrode, depositing upon the oxidized surface a tenuous finely divided layer of metal, photo-graphically sensitizing the produced layer of metal, projecting the light image of a multi-apertured surface upon the photographically sensitized layer, and photographically developing and fixing the light exposed layer to produce thereupon minute isolated metallic elements supported upon the oxidized surface.

2. The steps and method of preparing a photosensitive mosaic electrode upon a metallic plate electrode supported within an enclosing envelope which comprise oxidizing one surface of the plate electrode, depositing upon the oxidized surface a tenuous film of metal, exposing the deposited film to halogen vapors to produce on the odized surface a photographically sensitive film, directing a light image of a multi-apertured surface upon the photographically sensitized film, and photographically developing and fixing the light exposed film to produce thereupon minute isolated metallic elements supported upon the oxidized surface.

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