

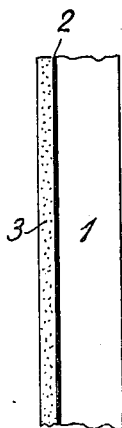
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W. UHLMANN

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Inventor:  
Wolfram Uhlmann  
by *R.C. Hoppood*  
Attorney

## UNITED STATES PATENT OFFICE

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## BRAUN TUBE

Wolfram Uhlmann, Berlin, Germany, assignor to  
C. Lorenz Aktiengesellschaft, Berlin-Tempel-  
hof, Germany, a company

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In television transmission it is customary to use Braun tubes of the kind designated as Iconoscope, which have a metal screen or so-called signal plate fitted with an insulating layer and a light-reactive or photo-electric layer arranged on the insulating layer and distributed thereon in mosaic fashion. The operation of such tubes is as follows: The different intensities of brightness of a picture projected on the photo-electric layer effect a manifold distribution of the electric charges in this layer. These charges are carried away by means of a cathode ray moved line by line across the screen in passing through a picture disintegrating device of well known type, thus being given the customary scanning motion. At the points where the cathode ray impinges upon the screen, secondary electrons are produced which act to carry away the elemental capacities. As a result, depending upon the different intensities of illumination which are influencing the screen, currents of different intensities are then flowing over a loading resistance connected to the said signal plate. The alternating voltages effective at this resistance depend upon the magnitude of the electric charges the elemental capacities are able to receive, while in addition they also depend upon the size of such resistance. Such a charge is the greater the higher the capacity between the light-reactive particles of the photo-electric layer and the metal plate of the screen. It is therefore sought to render this capacity as great as possible. The capacity increases with decreasing thickness of the dielectric. In known construction of such tubes a mica disc is used as dielectric. Mica discs, however, are of a limited minimum thickness, this being due to mechanical reasons.

The invention proposes to use a novel method of manufacturing the dielectric of these tubes, namely a method that allows of arranging a dielectric of much less thickness than has been possible heretofore.

The accompanying drawing shows a fragmentary side view, drawn to a large scale, of a photo-electric screen manufactured in accordance with the invention.

This screen comprises a metal plate 1, which is the said metal screen or signal plate, a layer of insulating material 2, and a layer 3 for the storage of the electric charges.

The insulating layer 2 is applied to plate 1 with the aid of an evaporation method and may consist of quartz, for example.

As is well known, layers produced by evaporation may be given any desired degree of minimum thickness. In addition a special advantage in this regard is that an insulating material, such as quartz, may be employed which is of a higher specific resistance than mica. The resistance of mica is 100 or  $200 \times 10^{15} \Omega/\text{cm.}$  while that of quartz, for instance, is  $10^{17}$  or  $10^{18} \Omega/\text{cm.}$  Similar advantages reside in the heat conductivity of these two materials, the heat conductivity of mica amounting to  $10^3 \text{ cal./cm./sec.}$  while that of quartz is in the value of  $4 \times 10^3 \text{ cal./cm./sec.}$  The heat conductivity is here of special importance because the photo-electric layer is easily destroyed by the thermal effect of the cathode ray, a fact that in the case of Iconoscopes is known to require cathode rays of small intensity to be employed for scanning. Thus, if quartz is used the thermal load can be four times as great as in the case of mica.

What is claimed is:

1. The method of manufacturing photo-electric screens which comprise applying a layer of quartz to a conductive plate by evaporation and then applying to this layer of quartz a layer of electric charge storing material.

2. The method of manufacturing photo-electric screens which comprise applying a layer of quartz to a conductive plate by evaporation and then applying to this layer of quartz a mosaic layer of photo-sensitive material.

3. The method of manufacturing photo-electric screens which comprise applying a layer of quartz to a conductive plate by evaporation and then applying to this layer of quartz a mosaic layer of secondary emissive material sensitive to light.

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