

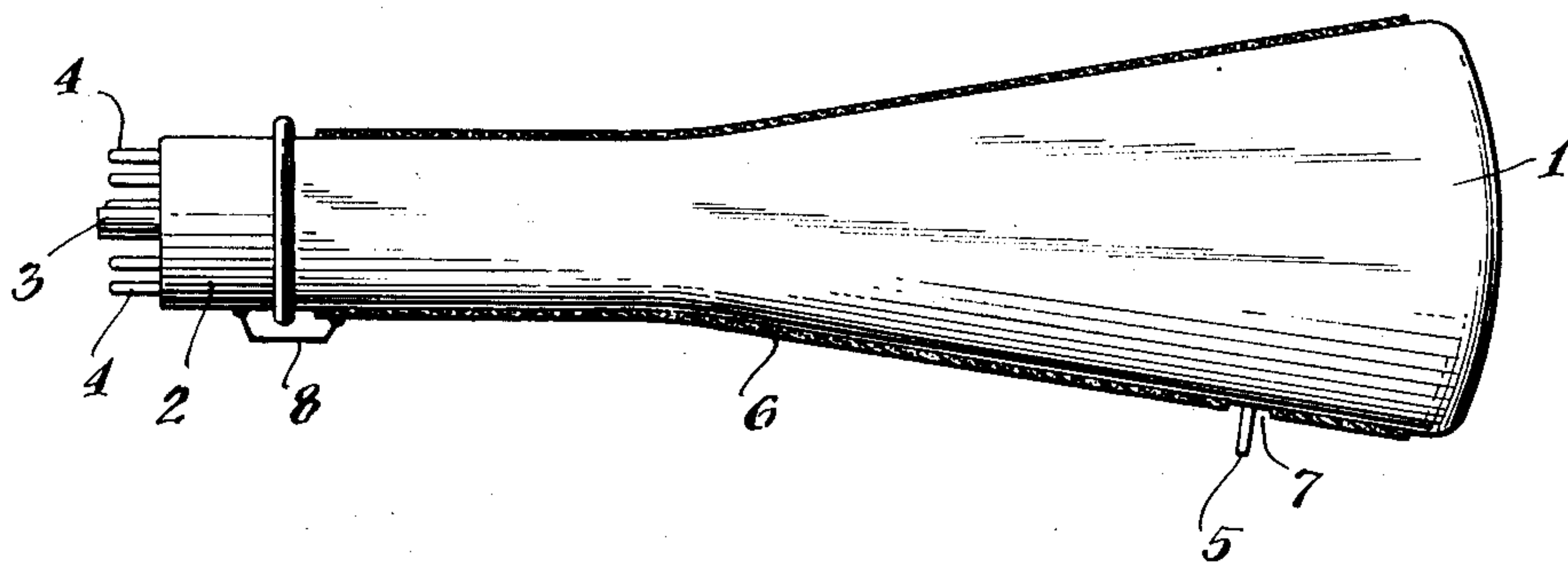
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SHIELD FOR CATHODE RAY TUBES

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SHIELD FOR CATHODE RAY TUBES

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3 Claims. (Cl. 250—141)

This invention relates to a shield for a cathode ray tube which shields the tube from magnetic as well as electrostatic influences. It is primarily for the purpose of shielding the electron beam of the tube from both magnetic and electrostatic stray fields so that errors of deflection of the beam will be avoided.

In carrying out the invention an electrostatic and magnetic shield of high magnetic permeability is applied to the outside surface of the cathode ray tube in such a way that it does not in any way interfere with the normal operation of the tube or add very materially to the cost thereof.

The invention may be understood from the description in connection with the accompanying drawing which is a side view of a cathode ray tube showing in section a magnetic and electrostatic shield applied to the tube.

In the drawing reference character 1 indicates a cathode ray tube having the usual metallic base 2 with center pin 3 and a circular row of contact pins 4. The structure inside the tube for generating and deflecting the cathode ray may be made up of any of the known sorts. They are not shown as they do not constitute any part of this invention. The external portion of a connector for making electrical connection from a source of high potential to the customary intensifier for the cathode ray beam located inside the tube is shown at 5.

The magnetic and electrostatic shield 6 for the tube 1 is applied to the outer surface thereof and is shown in section by the cross hatching. It is applied to the tube 1 from a region at or near the metal base 2 nearly to the outer or large end of the tube. A hole 7 is provided through the shield 6 so that it will not contact with the connector 5. A metal jumper or band 8 connects the shield 6 electrically to the metal base 2.

The shield 6 is made up of finely granulated material of high magnetic permeability in weak magnetic fields. This material is also of good electrical conductivity. For example, particles of mu metal, which is an alloy of iron and nickel, or pure iron, or other magnetically permeable and electrically conductive material may be used for preparing the shield 6.

The metallic material for the shield 6 is finely divided or disintegrated and suspended in a binder and the suspension is applied to or coated upon the outer surface of the cathode ray tube 1 in any convenient way as by brushing or spraying it on, for example, until a sufficiently thick layer is provided to exclude magnetic fields of the order of 0.5 gauss. Thicknesses of 0.15 inch have been found to be sufficient in most cases. The suspension material or binder to be used may be of a variety of materials such as a Celluloid base binder, synthetic resin, asphalt, etc., that will adhere to the surface of the tube and retain the metallic particles in place. The amount of the metal particles in the binder is sufficiently large to cause enough contact of the particles with each other to make the coating 6 electrically conductive.

What is claimed is:

1. A magnetic and electrostatic shield for a cathode ray tube having a metal base, comprising particles of electrically conductive material of high magnetic permeability applied in an adhesive binder to said tube, said shield being separated from but electrically connected to the metal base of said tube.

2. A magnetic and electrostatic shield of high magnetic permeability for a cathode ray tube having a metal base, comprising a thick coating of particles of electrically conductive material of high magnetic permeability applied in an adhesive binder to said tube, the amount of said particles in said binder being sufficient to make the shield electrically conductive, said shield being separated from but electrically connected to said metal base.

3. A magnetic and electrostatic shield for a cathode ray tube having a metal base, comprising a coating of enough particles of electrically conductive material of high magnetic permeability in an adhesive binder on said tube to make the coating electrically conductive, said shield being separated from but electrically connected to said metal base.

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