

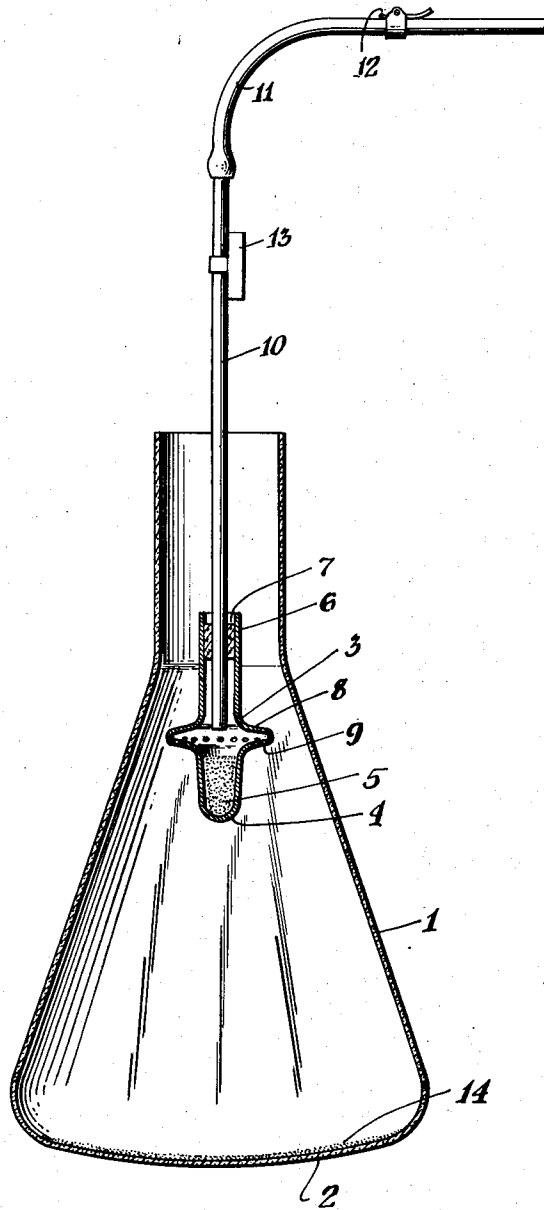
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APPLICATION OF FLUORESCENT MATERIAL TO ELECTRON TUBES

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APPLICATION OF FLUORESCENT MATERIAL TO ELECTRON TUBES

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4 Claims. (Cl. 250—81)

This invention relates to a device for applying fluorescent material in the form of powder to the inside surfaces of the large ends of electron tubes in such a manner as to obtain a satisfactorily even distribution of the material over such surfaces.

Heretofore in using devices of this character troubles have arisen due to the fact that during the distribution of the material on the desired surface, particles of the cloud of dust collect on the outside of the device used for creating the dust cloud. This dust settles into place by gravity and falls off in batches of collected particles, thereby seriously interfering with the desired uniformity of distribution of the fluorescent material and in fact resulting in the necessity of removing the layer from the tube surface and trying again thus wasting time and material.

By the present invention this difficulty is overcome in a very simple and inexpensive way so that the danger of spoiling the even distribution of the particles of fluorescent material on the surfaces that have been prepared to receive them is avoided.

The invention will be understood from the description in connection with the accompanying drawing, which is somewhat diagrammatic.

In the drawing, reference character 1 indicates an electron tube the large end 2 of which is to be coated on the inside with fluorescent material which is applied thereto in the form of a powder.

A container 3 for the powder is inserted into the upper portion of the tube 1 and has a rounded lower portion 4 for the powdered fluorescent material 5. The neck 6 of the container 3 is provided with a stopper 7, and the enlarged annular intermediate portion 8 of the container 3 is provided with a row of perforations 9 that are directed in downward and outward directions.

A rigid tube 10 which may, for example, be made of glass, fits tightly in the stopper 7, which in turn fits tightly in the neck 6 so that the container 3 is supported by the tube 10. A flexible tube 11, which may be made of rubber, for example, leads from any convenient source of compressed air to the tube 10 and is provided with a valve or cutoff 12 for regulating or cutting off the air entering through the tube 10. A vibrator 13 is attached in any convenient way to the tube 10. This vibrator may, for example, be operated electrically or in any other convenient way. It may be similar to a doorbell, or any other convenient magnetically-operated device may be used as the vibrator, or any other convenient method of causing vibration of the container 3 may be used.

In using the device a thin layer of sodium

silicate is applied to the inside of the bottom 2 of the tube 1 and spread over the bottom of this tube. The container 3 with powdered material 5 therein is introduced into the electron tube 1 by means of the tube 10, and a valve 12 is opened to cause air to enter the portion 4 and stir up the fine particles of fluorescent material 5 and carry them out through the holes 9 as a cloud which gradually descends and collects upon the sodium silicate at the bottom of the tube 1 and adheres thereto. At the same time, the vibrator 13 is kept in operation so that no film or segregated amount of dust could collect upon any portion of the outside of the container 3 and build up to such an extent that it would fall off in flakes or as a pile upon the sodium silicate layer at the bottom of the tube 1. Thus uniform distribution of the fluorescent material at the bottom of the tube is assured. The fine dots 14 are intended to indicate the distributed fine particles of fluorescent material adhering to the sodium silicate at the bottom of the tube 1.

This invention has proven to be particularly useful in the preparation of cathode-ray tubes.

What is claimed is:

1. In a device of the character described, a container for powdered fluorescent material, means for distributing a cloud of said material from said container, and means to prevent said material from collecting in a layer on the outside of said container, said last named means including a vibrator for said container.

2. In a device of the character described, a container for powdered fluorescent material, air-blast means for distributing a cloud of said material from said container, and means to prevent said material from collecting in a layer on the outside of said container, said last named means including a vibrator for said container.

3. In a device of the character described, a container for powdered fluorescent material, having perforations above its bottom, means for distributing a cloud of said material from said container, and means to prevent said material from collecting in a layer on the outside of said container, said last named means including a vibrator for said container.

4. In a device of the character described, a container for powdered fluorescent material, having an annular extension above the bottom thereof with perforations along its lower portion, means for distributing a cloud of said material from said container, and means to prevent said material from collecting in a layer on the outside of said container, said last named means including a vibrator for said container.

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