Jan. 16, 1940. H. M. BIELE 2,187,484

PHOTOELECTRIC TUBE

Original Filed Feb. 10, 1938

FIG. 1

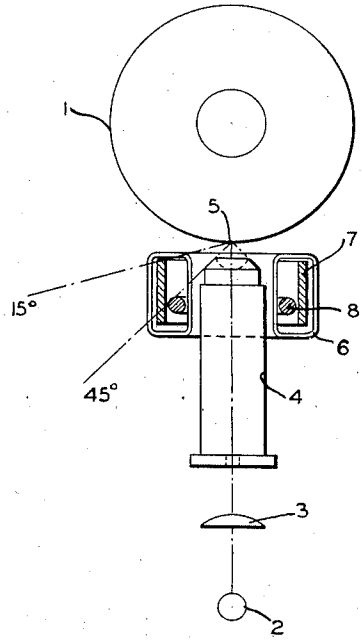
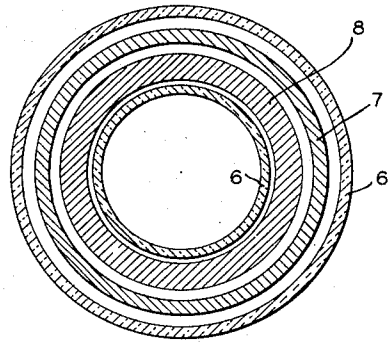


FIG. 2



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PHOTOELECTRIC TUBE

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1 Claim. (Cl. 250—165)

This application is a division of Serial Number 189,773, filed Feb. 10, 1938.

This invention relates to a photoelectric tube.

An object of the invention is to provide a photoelectric tube of high efficiency and simple construction particularly adapted for use with picture scanning systems.

Other objects will appear in the following description given with the aid of the accompanying drawing of which

Figure 1 is a schematic view of a scanning device, partly in section;

Figure 2 is a horizontal section of the photoelectric tube according to the present invention.

Referring now to Figure 1 of the drawing:

Reference character 1 indicates a scanning cylinder about which the picture to be scanned is wrapped. Light from a light source 2 shines through a condenser lens 3, through optical system 4 which projects the light onto the surface of the cylinder at the point 5. A diffused light varying in intensity according to the shading of the elemental tone areas of the picture is reflected onto the cathode of a photoelectric tube of novel construction, now about to be described.

Heretofore, it has been customary to use various arrangements of mirrors for collecting the diffused light from the picture being scanned, but it has been found that such systems are needlessly inefficient in that a considerable amount of light is absorbed by the reflecting mirrors.

The use of mirrors is eliminated by the photoelectric tube of the present invention, the novel construction of which permits the objective of the optical system to be placed close to the picture thus making it possible to use a highly efficient short focus lens assembly. The tube consists of a glass envelope 6 of tubular shape through which an optical system extends. Inside the envelope 6 is a tubular cathode 7 and a concentrically disposed anode 8 which is preferably ring shaped.

Any suitable mounting or supporting means may be used for the parts contained in the glass envelope. Likewise, any suitable means may be used for providing external connections for the anode and cathode. By referring to the drawing it will be seen that the diffused light in the present embodiment, reflected at from 15 to 45 degrees will fall directly on the cathode of the photoelectric tube which may be placed very close to the pencil of light impinging on the cylinder at 5, resulting in a very simple and efficient scanning system with no appreciable light loss.

What is claimed is:

A photoelectric tube including a tubular double-walled vessel forming an unobstructed longitudinal passage therethrough and having a transparent window, an open ended tubular cathode having a continuous photo-sensitized surface the active area of which is a portion thereof to be exposed to light when in use, said cathode being mounted in said vessel substantially concentrically with said passage, and an anode in said vessel surrounding said passage adjacent the end of said active area and lying within said cathode.

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