Nov. 19, 1940. DE WITT R. GODDARD 2,221,944

TRANSPARENT ELECTROSTATIC SHIELD

Filed Feb. 28, 1938

Fig. 1

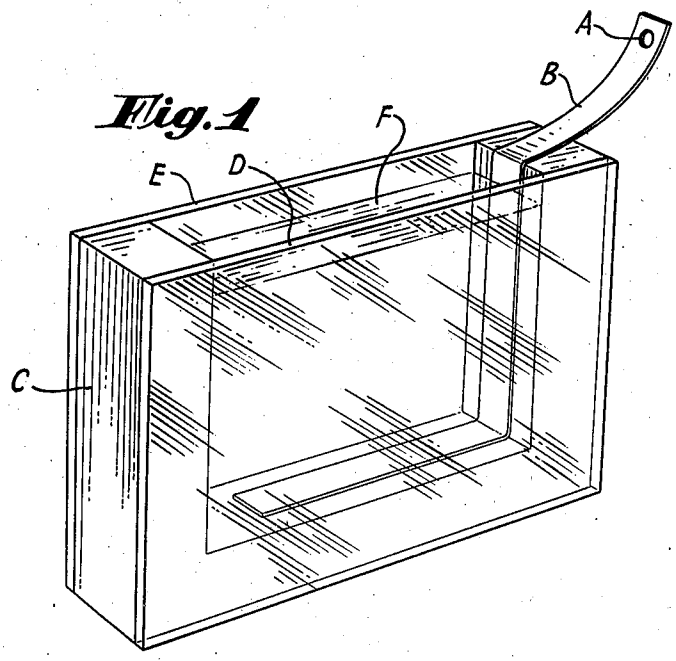
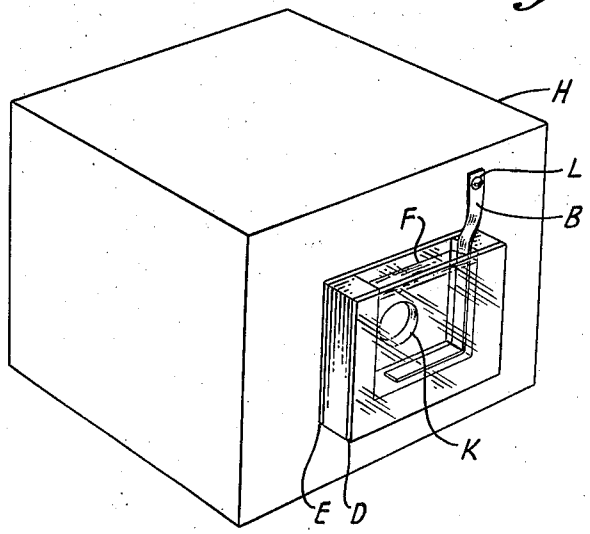


Fig. 2



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TRANSPARENT ELECTROSTATIC SHIELD

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3 Claims. (Cl. 250—41.5)

This invention relates to a new and novel transparent electrostatic shield which is particularly adapted to electrical circuits employing photocells.

A feature of this invention is an electrostatic shield which comprises a solid member for retaining a liquid medium which acts as an electrostatic shield through which light rays may pass.

For some purposes, it is desirable to have an electrostatic shield transparent to light. In the case of a photocell being used to pick up the light from the fluorescent screen of a cathode ray oscilloscope, the photocell circuit is apt to be affected by the strong electric field present around the oscilloscope screen. Wire screen or mesh may be used for this purpose but the use of such a screen cuts off part of the light and also may introduce a high frequency tone or other undesirable effects. The device I am about to describe provides an electrostatic shield without these limitations.

This invention will best be understood by referring to the accompanying drawing, in which:

Fig. 1 is a perspective view of the electrostatic shield of this invention; and

Fig. 2 is a perspective view of a shielded metallic container having a photocell and having an aperture in the front portion thereof in which is located the electrostatic shield of this invention, as shown in Fig. 1.

Referring now in detail to the drawing, Fig. 1 shows a diagram of a transparent electrostatic shield. E and D are two glass plates separated by a U-shaped block of solid material C. These plates are cemented to this block so as to form a watertight cell F. A metallic strip B passes around the inside of the U-shaped block C and in one extremity has a perforation A. The cell F is filled with a conducting solution of sulphuric acid, sodium chloride, calcium chloride, etc. A solution of any of these substances is essentially transparent to visible light and yet is a good conductor of electricity. The metallic strip B should be of a metal not affected by the solution used. Its purpose is to make an electrical contact to the electrolyte. The hole A is to provide a connecting means for grounding this strip.

Fig. 2 shows a copper box H which may completely enclose a photocell and its preamplifier. K is the aperture through which light is allowed to fall on the photocell. In order to shield this aperture electrostatically, cell F is fastened in front of it. The metallic strip B which makes an electrical connection to the solution in cell F is fastened to the copper box H by means of a screw shown at L, thereby grounding the solution for electrical potentials.

This transparent electrostatic shield may also be used as a color filter by adding the proper coloring matter to the solution or by using colored glass plates. It is understood that other transparent materials may be substituted for the glass plates, such as fused quartz, Lucite, etc.

This invention should not be limited to the precise showing therein.

What is claimed is:

1. An electrostatic shield comprising a casing having at least two walls of glass plates with color filtering means, a conducting liquid medium within said casing to act as an electrostatic shield through which light rays may pass located between said glass plates, and terminal means for electrically connecting said conducting liquid medium to an external electrical circuit.

2. An electrostatic shield comprising a container with walls of transparent plates, color filtering means interposed between the two outside surfaces of said transparent plates, and a conducting liquid medium acting as an electrostatic shield through which certain desired light rays may pass, said conducting medium located within said container and interposed between said transparent plates.

3. An electrostatic shield comprising a container with walls of transparent plates, a conducting liquid medium having color filtering means, said conducting liquid medium arranged to act as an electrostatic shield through which certain desired light rays may pass, said conducting liquid located within said container and interposed between said transparent plates, and terminal means for electrically connecting said conducting liquid to an external electrical circuit.

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