Oct. 8, 1940. O. GEISLER 2,217,402

PHOTOCELL

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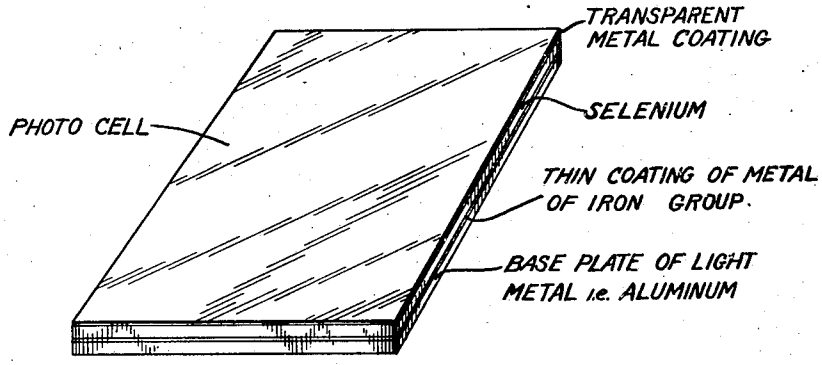

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PHOTOCELL

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4 Claims. (Cl. 136—89)

Some photocells with a selenium insulating coating are known to the art in which a selenium coating is welded onto a base plate made of some metal of the iron group, which coating is transformed from the amorphous condition into the grey crystalline condition through different heat processes, and the free surface of which is then covered with a transparent metallic film.

If rays strike the selenium coating through the transparent metallic film, an electromotive force is produced thereby which is proportionate to the rays striking the cell.

The known selenium photo elements are frequently built into a housing together with a sensitive movable coil instrument, serving in this way as a brightness meter. In an assembly of this kind the magnetic circuit of the movable coil instrument can be easily influenced due to the presence of the photocell with an iron base plate.

By means of the photocell according to the present invention this disadvantage, which has to be contended with in the assembly of the known cell with a movable coil instrument, is overcome.

The reason is that in this photocell the base plate to which is welded the semi-conductive coating, especially the selenium coating, is made of a light metal, which is covered with a thin coating of metal of the iron group as shown by the single figure illustrating an embodiment of my invention. A nickel-plated aluminum plate is especially suitable as the base metal of the photocell according to the present invention. In order to obtain a most perfect contact between the base plate and the selenium coating to be welded onto the former, the aluminum plate is appropriately roughened mechanically or chemically before it is nickel-plated.

It is necessary to cover the aluminum plate with a metal of the iron group in order to obtain a low contact resistance between the base plate and the selenium coating. If the selenium coating were to be welded directly onto the aluminum base plate, then the oxide coating on the aluminum plate would form a high resistance between the base plate and the selenium coating.

Consequently the nickel-plating of the aluminum base plate must be so carried out according to one of the known methods that it will not be possible for any oxide coating to form between the aluminum plate and the nickel coating.

With such a cell with a base plate made of light metal the magnetic system of a movable coil instrument can not be influenced. Moreover, this cell, as compared to the known cell, has the additional advantage of being lighter.

The cell according to the present invention is also superior to the known cells having an iron base plate in other cases, for instance in an assembly of a photocell with a magnetic needle.

What I claim is:

1. A photocell comprising a rigid base plate of light non-ferrous metal on one surface of which is a thin coating of nickel, a crystallized selenium layer mechanically weldled to said coating, and a thin, light-permeable film of relatively chemically inactive metal in intimate contact with the opposite surface of said selenium layer.

2. A photocell according to claim 1, wherein the surface of the base plate which is covered with said thin layer of nickel is of rough form.

3. A photocell comprising a rigid base plate of aluminum, a thin coating of nickel on one surface of said base plate, a crystallized semi-conductive layer of light-sensitive selenium mechanically welded to said coating, and a thin, light-permeable film of relatively chemically inactive metal in intimate contact with the opposite surface of said selenium layer.

4. A photocell comprising a rigid base plate of light non-ferrous metal on one surface of which is a thin coating of a metal of the iron group, a crystallized selenium layer mechanically welded to said coating, and a thin, light-permeable film of relatively chemically inactive metal in intimate contact with the opposite surface of said selenium layer.

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