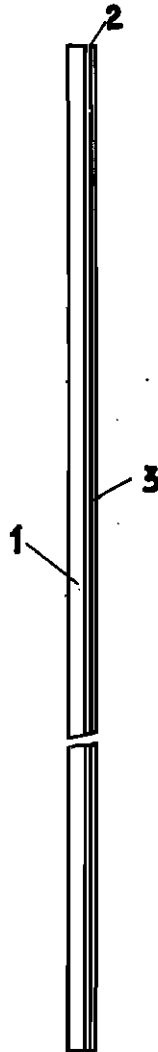


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FLUORESCENT SCREENS
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ALIEN PROPERTY CUSTODIAN

FLUORESCENT SCREENS

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This invention relates to screens which fluoresce when substituted to the action of certain rays.

Fluorescent screens known in prior art are provided with filters which prevent certain portions of the daylight spectrum or of similar artificial illumination from reaching the fluorescent layer of the screen. The purpose of this filter is to prevent those rays which detrimentally affect the fluorescent layer, namely, which cause it to change its color or cause it to phosphoresce, from reaching the fluorescent layer. Filters of this type should be of such color or so constructed that they are transparent for the light emitted by the fluorescent screen, and that they prevent all light which detrimentally affects the fluorescent layer from reaching it.

The drawback of such filters is that it is necessary to provide a separate filter for each fluorescent material and to carry out experiments in order to determine the most advantageous type of filter.

An object of this invention is the provision of a filter of the same consistency, which may be used for fluorescent screens having different fluorescent materials.

Other objects of the present invention will be apparent in the course of the following specification.

The present invention is based on the discovery that in many instances it suffices to cover a fluorescent screen with a filter which completely absorbs all the ultra violet rays of the spectral range and which transmits all the visible rays of light. A filter of this type appears transparent to the eye and has the advantage that it may be used for screens emitting a different fluorescent light, so that a single filter can be employed for different fluorescent layers. Consequently, it is not necessary to adjust the coloring or the type of the filter to the specific fluorescent layer employed in each individual case.

The objects of the present invention may be realized through the provision of a filter consisting of an organic substance into which is imbedded an absorbent for ultra violet light. The filter may be very thin and have a thickness of about .01 mm.

Any absorbent for ultra violet rays may be used for the purposes of the present invention. It is advisable to employ substances which, even when used in small amounts, absorb ultra violet rays, particularly the long-wave part of the ultra violet ray spectrum. For example, it is pos-

sible to use beta-umbelliferrone acetic acid, which has the faculty of absorbing ultra violet rays of light to such an extent that a layer of acetyl cellulose which is 0.01 mm. thick and a square centimeter of which contains 0.5 mg. of this acid, serves as adequate protecting means for preventing all the detrimental components of daylight from reaching a fluorescent layer containing, for example, zinc sulphide.

A filter of this type is transparent and may be used in connection with layers emitting different fluorescent rays, including fluorescent layers which have zinc sulphides and zinc cadmium sulphides as their active components.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawing showing by way of example a preferred embodiment of the inventive idea.

The drawing shows a fluorescent screen in side elevation.

The screen shown in the drawing comprises a base 1, which may consist of cardboard, rubber, wood, artificial resins, or any other suitable substances. The base 1 carries a fluorescent layer 2, which consists of a fluorescent substance and a binding substance, with the addition of a softening agent in certain instances. The fluorescent substance may consist of zinc sulphide, zinc cadmium sulphide, or the like.

The fluorescent layer is covered by a filter 3 which has the faculty of absorbing at least the major portion of ultra violet rays. The filter 3 may consist of a thin skin of acetyl cellulose having the thickness of .01 mm. One sq. cm. of this skin may contain 0.5 mg. of beta-umbelliferrone acetic acid.

These filters which cover fluorescent screens may be employed in connection with the lead glass used for the absorption of X-rays. Furthermore, filters of this type may be used in combination with strengthening foils, Braun tubes, wall coatings, and the like.

Instead of using a separate light filter, the substance which absorbs ultra violet rays may be added to the binding substance constituting a part of a fluorescent layer.

The advantages of a filter of the described type which contains absorbing means for ultra violet rays may be illustrated by means of the following simple experiment:

A substance which acts as an absorbent for ultra violet rays is imbedded in small quantity in a thin layer of acetyl cellulose. Then a fluorescent screen is covered with this acetyl cellu-

lose filter and is subjected to the ultra violet rays of a quartz lamp, which is provided with a black glass filter for absorbing all the visible rays. Then the ultra violet rays of the quartz lamp are absorbed by the described filter, so that the fluorescent screen covered by the filter will not fluoresce and will appear entirely black.

If, however, instead of using a filter constructed in accordance with the principles of the present invention a fluorescent screen were used which contains substances utilized in the prior art, such substances being added to the binding substance of the fluorescent layer or covering the fluorescent layer, the screen will begin to fluoresce under the influence of the ultra violet

light of the quartz lamp. This indicates that the protective coating or the binding substance used in prior art are insufficient to protect the fluorescent layer from the effect of all the ultra violet rays.

It is apparent that the specific illustrations shown above have been given by way of illustration and not by way of limitation, and that the structures above described are subject to wide variation and modification without departing from the scope or intent of the invention, all of which variations and modifications are to be included within the scope of the present invention.

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