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(54) Luminous thin film having ultraviolet filtering and explosion-proofing for fluorescent lamps

(57) A luminous lamp thin film having ultraviolet filtering and explosion-proof is disclosed. An outside of a lamp is coated by a transparent layer which comprises phosphor powder. Energy generated by the lamp is absorbed by the phosphor powder while the lamp is shining. The phosphor powder would release energy to shot brilliance, so as to provide auxiliary lighting after turning off the lamp.

In addition, the phosphor powder can absorb harmful ultraviolet and other harmful radiations with shorter wavelengths to be one part of the thin film for filtering harmful radiations. The harmful ultraviolet can be transformed by the phosphor powder into visible light to red shift radiations with short wavelengths; hence the harmful radiations with shorter wavelengths can be eliminated. The illumination of visible light can be further increased.

The transparent layer can catch broken fragments of the outside of the lamp to decrease accidents when the lamp is broken.

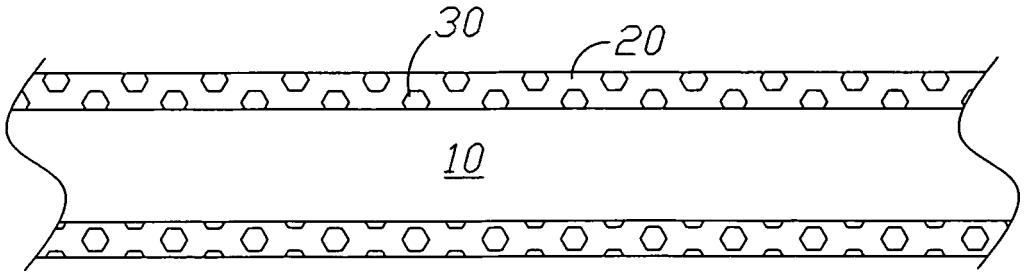

Fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a lighting fixture, and more particularly, to a lamp for auxiliary lighting by using phosphor powder for auxiliary lighting or for preventing ultraviolet shot from the lamp.

BACKGROUND OF THE INVENTION

[0002] Generally, lamp cups are always used for covering lamps. Therefore, extra lighting fixtures are needed to be a support for fixing the lamp cups.

[0003] In order to acquire the efficiency of auxiliary lighting, traditionally a small luminous lamp is then added after turning off the main lamp.

[0004] Moreover, a filter made by vacuum coating is used for filtering ultraviolet sent from a traditional lamp. That way is very expensive. The frequency filter only uses interferometric technique to filter ultraviolet which may harm the human body. Only energy loss is produced for the lamp and ultraviolet which has been filtered can not be transformed into visible light.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to provide a luminous lamp thin film having ultraviolet filtering and explosion-proof. A transparent layer is used to coat an outside of a lamp and comprises a phosphor powder. The energy sent from the lamp is absorbed by the phosphor powder when the lamp is shining. Brightness is released by the phosphor powder to provide auxiliary lighting after the lamp is turned off.

[0006] Another object of the present invention is a luminous lamp thin film having ultraviolet filtering and explosion-proof. The transparent layer is used to coat the outside of the lamp. The broken fragments can be caught by the transparent layer and, hence the broken fragments of the outside of the lamp would not be scattered to reduce accidents when the lamp is broken.

[0007] The further object of the present invention is to provide a luminous lamp thin film having ultraviolet filtering and explosion-proof. The phosphor powder is provided to absorb ultraviolet or other radiations with shorter wavelengths and can be a filter layer for filtering harmful radiations in order to reduce harming eyes and skins. Furthermore, the illumination of visible light can be increased to improve the efficiency of energy usage.

[0008] Other features and advantages of the present invention and variations thereof will become apparent from the following description, drawings, and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

FIG. 1 is a structural drawing according to a preferred embodiment of the present invention;

FIG. 1A is a structural drawing illustrating a powder particle of phosphor powder according to a preferred embodiment of the present invention;

FIG. 2 is a structural drawing according to another embodiment of the present invention; and

FIG. 3 is a structural drawing according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] To make it easier for our examiner to understand the objective of the invention, its innovative features and performance, a detailed description and technical characteristics of the present invention are described together with the drawings as follows.

[0011] Referring to FIG. 1, a structural drawing according to a preferred embodiment of the present invention is illustrated. As shown in FIG. 1, an outside of a lamp 10 is coated by a transparent layer 20. The transparent layer 20 comprises phosphor powder 30 and the transparent layer 20 comprises polymer.

[0012] Because the outside of the lamp 10 is coated by the transparent layer 20, the transparent layer 20 can catch broken fragments of the lamp 10 to reduce accidents when the lamp 10 is broken.

[0013] The transparent layer 20 includes the phosphor powder 30 and energy sent from the lamp 10 is absorbed by the phosphor powder 30 when the lamp 10 is shining. The energy is released by the phosphor powder 30 to shoot brightness to provide the performance for auxiliary lighting.

[0014] Referring to FIG. 1A, a structural drawing illustrates a powder particle 32 of the phosphor powder 30. The powder particle 32 is coated by ceramics, e.g. alumina ceramics, titanate ceramics, ferrite ceramics, zirconate ceramics, silicon carbide ceramics, cordierite ceramics, beryllia ceramics, silicon nitride ceramics, and other ceramics. The vapor can be blocked by the powder particle 32 of the phosphor powder 30.

[0015] Because ultraviolet and or other radiations with shorter wavelengths are absorbed by the phosphor powder 30 to be energy level that can be excited. Therefore, those harmful ultraviolet or other harmful radiations with shorter wavelengths can be absorbed by the phosphor powder 30 to reduce harming people. The phosphor powder 30 can be a filter layer for filtering harmful radiations in order to reduce harming eyes and skins.

[0016] Moreover, the harmful ultraviolet can be transformed by the phosphor powder 30 into visible light to red-shift radiations with short wavelengths (the shorter wavelengths are shifted to the longer wavelengths). The radiations with shorter wavelengths which may harm people can be eliminated and the illumination of visible light can be further increased to improve the efficiency of energy usage.

[0017] Therefore, the traditional small luminous lamp can be replaced by the present invention. The transparent layer 20 can use spraying paint, transfer printing, rolling printing, screen printing, extruding or injecting shell and sleeves to take the transparent layer to coat the outside of the lamp during the night or in a power failure. The phosphor powder 30 can be added into a material, e.g. polymer, in order to mix with the transparent layer 20 adequately before manufacturing the transparent layer 20. A lamp thin film having photoluminescence material is then manufactured by using spraying paint, transfer printing, rolling printing, screen printing, extruding or injecting.

[0018] Referring to FIG. 2 and FIG. 3, other embodiments of the present invention are illustrated. Phosphor powder 20 is coated by the transparent layer 30 or the phosphor powder 20 is mixed into the transparent layer 30 or a phosphor powder is added into the material of the lamp.

[0019] Because the light shot by the lamp 10 is a discontinuous light, therefore, the phosphor powder 20 is utilized to absorb or emit light to enable the lamp 10 to mix with the light emitted by the phosphor powder 20 to be a continuous light, so as to reduce flash light.

[0020] Although the features and advantages of the embodiments according to the preferred invention are disclosed, it is not limited to the embodiments described above, but encompasses any and all modifications and changes within the spirit and scope of the following claims.

Claims

1. A luminous lamp thin film having ultraviolet filtering and explosion-proof, comprising:

a lamp; and
a transparent layer, coated an outside of said lamp, said transparent layer containing a phosphor powder.

2. The luminous lamp thin film of claim 1, wherein said transparent layer comprises a polymer.

3. The luminous lamp thin film of claim 1, wherein said phosphor powder is selected from one of afterglow phosphor and photoluminescence material.

4. The luminous lamp thin film of claim 1, wherein an outside of each powder particle of said phosphor powder is coated by ceramics.

5. A luminous lamp thin film having ultraviolet filtering and explosion-proof, comprising:

a lamp;
a phosphor layer, coated an outside of said lamp; and
a transparent layer, coated an outside of said phosphor layer.

6. The luminous lamp thin film of claim 5, wherein said transparent layer comprises a polymer.

7. The luminous lamp thin film of claim 5, wherein said phosphor layer is selected from one of afterglow phosphor and photoluminescence material.

8. The luminous lamp thin film of claim 5, further comprising a transparent layer to be coated between said lamp and said phosphor layer.

9. The luminous lamp thin film of claim 5, wherein said phosphor layer comprises phosphor powders, and each powder particle of said phosphor powders is coated by ceramics.

10. A luminous lamp thin film having ultraviolet filtering and explosion-proof, comprising:

a lamp; and
a transparent layer, coated an outside of said lamp;

wherein said transparent layer can catch broken fragments of said lamp when said lamp is broken.

11. The luminous lamp thin film of claim 10, wherein said transparent layer comprises a polymer.

12. A luminous lamp thin film having ultraviolet filtering and explosion-proof, comprising:

a lamp; and
a phosphor powder, coated an outside or inside of said lamp;

wherein said phosphor powder can filter ultraviolet light emitted from said lamp.

13. The luminous lamp thin film of claim 12, wherein said phosphor powder is selected from one of afterglow phosphor and photoluminescence material.

14. The luminous lamp thin film of claim 12, wherein said phosphor powder is coated by ceramics.

15. A luminous lamp thin film having ultraviolet filtering and explosion-proof, comprising:

a lamp; and
a phosphor powder, coated an outside or inside of said lamp;

wherein the lights mixing from said lamp and said

phosphor powder shot by said lamp reduce the flash light of said lamp.

16. The luminous lamp thin film of claim 15, wherein an outside of each phosphor powder particle is coated by ceramics.

17. A luminous lamp thin film having ultraviolet filtering and explosion-proof comprising a lamp, and a shell of said lamp containing phosphor powder.

18. The luminous lamp thin film of claim 17, wherein an outside of each phosphor powder particle is coated by ceramics.

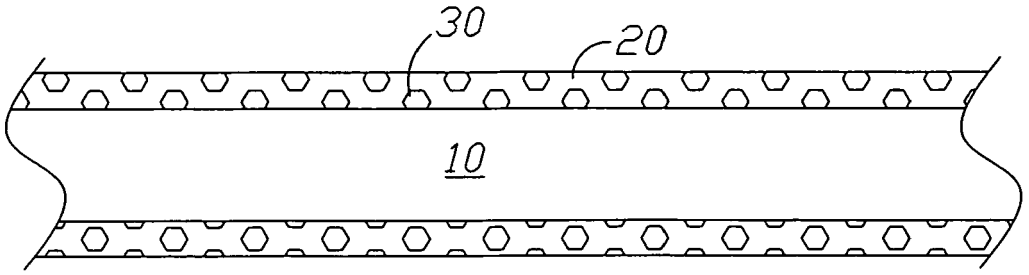
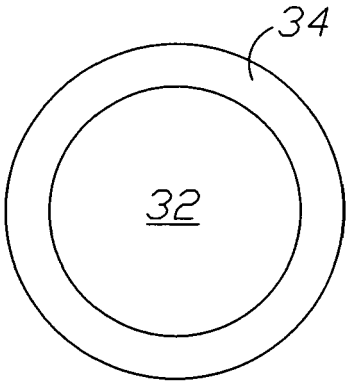


Fig. 1



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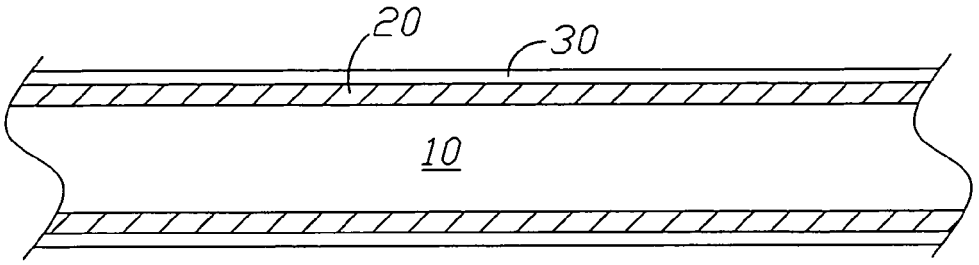

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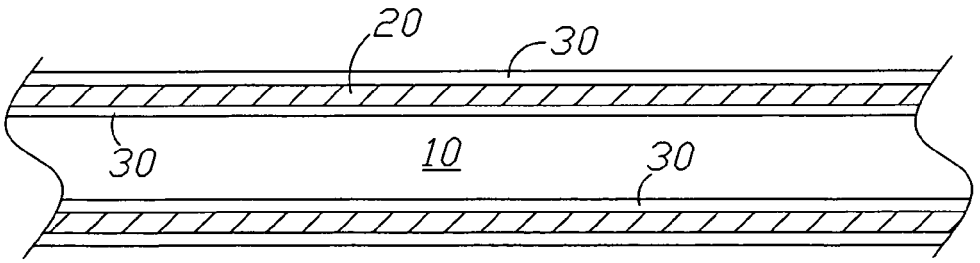

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