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Stolov

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[54] **ILLUMINATING DEVICE**

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[52] **U.S. Cl.** ..... **240/10 R,** 40/130 N, 40/132 C

[51] **Int. Cl.** **A47g 33/00,** F21p 3/00

[58] **Field of Search** ..... 240/3, 3.1, 10 R, 10 T, 240/10.1; 315/194, 195, 294, 295, 299, 250; 40/130 R, 130 C, 130 N, 130 F, 130 L, 132 C

[56] **References Cited**

UNITED STATES PATENTS

1,222,092	4/1917	Fricke	40/130 N
1,669,521	5/1928	Hunter	315/294 X
1,687,391	10/1928	Samminiatelli	240/10.1
1,735,103	11/1929	Barlow	240/3.1
1,809,181	6/1931	Ramsden	240/3.1
1,886,341	11/1932	Kirk	240/3.1 X
1,937,138	11/1933	Barclay	240/10.1
2,615,121	10/1952	Cox	240/3.1
3,226,601	12/1965	Cramer et al.	315/250 X
3,283,136	11/1966	Dinkler et al.	240/10 R
3,324,289	6/1967	Cirko	240/10.1
3,388,245	6/1968	Larsen	240/10 R X

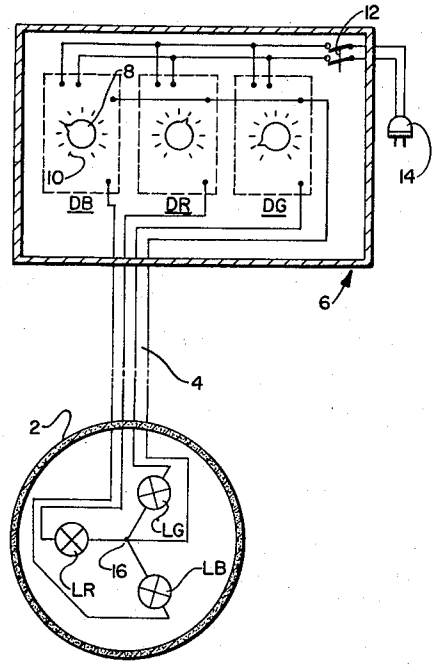
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[57] **ABSTRACT**

An illuminating device for providing illumination of any desired colour, intensity and saturation, which may be remotely controlled, comprises a housing of matte transluscent material, one or more groups of light sources disposed within the housing, each group including a red light source, a blue light source and a green light source and light dimmers for individually controlling the intensity of each of the light sources to thereby select the colour and intensity of illumination of the device.

6 Claims, 4 Drawing Figures



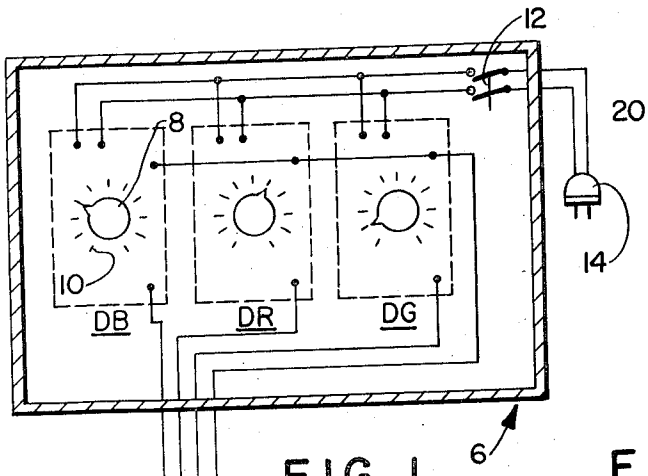


FIG. 1

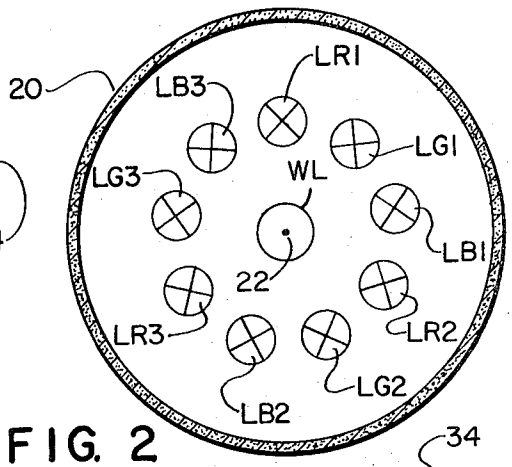
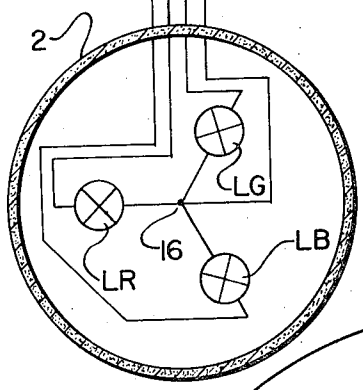


FIG. 2



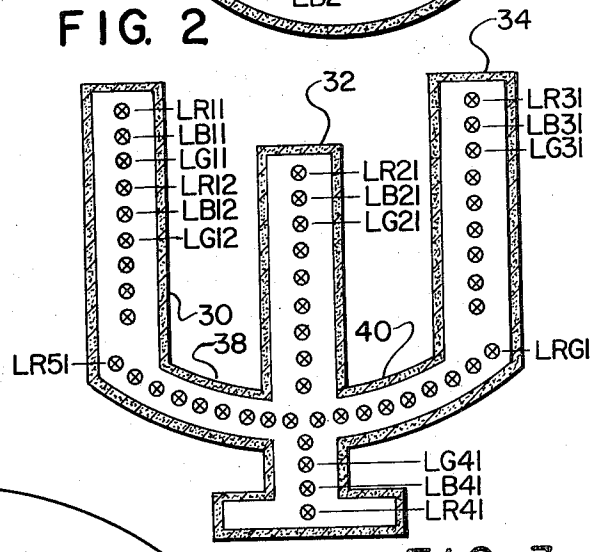


FIG. 3

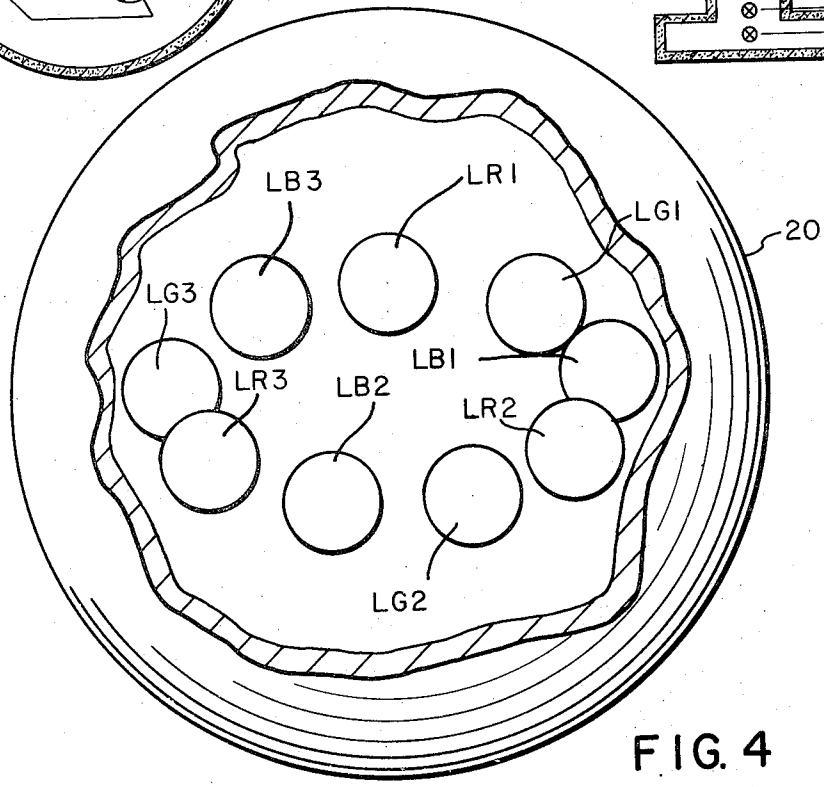


FIG. 4

ILLUMINATING DEVICE

BACKGROUND OF THE INVENTION

The present invention relates to illuminating devices and particularly to a lamp which is adapted to provide illumination of any desired colour or intensity.

SUMMARY OF THE INVENTION

According to the invention, there is provided an illuminating device for producing illumination of any desired colour and intensity, the illuminating device comprising a housing of transluscent material, at least one group of three differently coloured light sources disposed within the housing, the group including a red light sources, a blue light source and a green light source and light dimmers for individually and remotely controlling the intensity of each of the light sources to thereby select the colour and intensity of illumination of the device.

It will thus be seen that any desired colour or intensity of illumination can be selected by controlling the light dimmers. For example, if the colour red is desired, the light dimmers are controlled so that only the red light source is energised, the amount of energization also controlling its intensity. The same applies with respect to obtaining a blue or green colour of illumination. Other colours are obtained by controlling the respective intensities of the three light sources and if all the light sources emit light of equal intensity, white light is obtained.

It is thus seen that the colour and intensity of a light fixture can be controlled from a distance, without any mechanically moving parts and the effect provided by the new lamp is truly impressive.

The transluscent housing may be of any desired shape, for example spherical, box-like, ellipsoidal, pyramidcal or any other irregular shape. In a preferred embodiment of the invention described below, it is of global shape and the light sources are disposed symmetrically about a central axis of the globe. The global transluscent housing may include only one group of light sources, i.e., one red, one blue and one green or it may include a plurality of such groups symmtrically disposed about the central axis of the globe. That is to say in the latter case, each light source in one group would be symmetrical about the globe axis with respect to the same coloured light sources of the other groups. Thus, if three groups of light sources are present, as in another preferred embodiment, there would be light sources of each colour and these would be disposed about the globe axis at 120° spacing from each other. In this manner, the bulb of one light source will not shade the light impinging on the housing from the others.

In another described embodiment, involving another housing configuration, there are plurality of groups of light sources, each group comprising three closely spaced linear light sources, disposed in a common plane. In the illustrated form of this embodiment, the plurality of groups of light sources are disposed in a plurality of different planes.

If desired, the illuminating devices may include a white light source and a separate dimmer for controlling the satuarion of each colour of illumination.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, somewhat diagrammatically and by way of example only, with reference to the accompanying drawings, wherein:

FIG. 1 illustrates one form of illuminating device constructed in accordance with the invention, the housing of the illuminating device being global in shape and being shown in transverse section;

FIG. 2 illustrates a variation in the form of FIG. 1

FIG. 3 illustrates another form of illuminating device constructed in accordance with the invention and

FIG. 4 is a partially broken away view of the form of illuminating device corresponding to FIG. 2 and illustrating in three dimensional perspective the placement of the light sources within a body of revolution according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference first to FIG. **1**, there is shown an illuminating device comprising a transluscent housing **2**, enclosing three differently coloured light sources, namely, a red lamp LR, a blue lamp LB, and a green lamp LG. All three lamps have glass envelopes coloured to provide the respective colours. The three lamps are connected by conductors **4** to a housing **6**, containing three light dimmers, namely DR for controlling the red lamp LR, DB for controlling the blue lamp LB and DG for controlling the green lamp LG. Each dimmer includes a knob **8**, which adjusts the intensity of the respective lamp from zero (i.e. de-energised) to maximum intensity, the dimmer including graduations **10**, indicating the setting of the control knob. The dimming devices are connected to a power supply through a main switch **12** and a plug **14**.

Any suitable form of dimming devices may be used, preferably one of the electronic integrated circuit dimming devices now available on the market. The dimming devices may be actuated in a continuous manner or in a step-wise manner.

The transluscent housing **2**, is preferably made of matte plastic, fabric, paper or frosted glass, and in this embodiment it is of global shape. In this case, particularly when there are only three light sources LR, LB and LG within the housing, these light sources would be disposed as close to the central axis **16**, of the globe as possible.

It will thus be seen that by controlling the dimmers DB, DR and DG, their respective light sources are controlled so as to provide any desired colour of illumination and also any desired intensity.

FIGS. **2** and **4** illustrates a variation in the form of illuminating device FIG. **1**. In this variation, there are three groups of differently coloured light bulbs, namely: three red light bulbs, LR **1**, LR **2** and LR **3**; three blue light bulbs, LB **1**, LB **2**, LB **3**; and three green light bulbs, LG **1** LG **2**, LG **3**. Housing **20**, is also of global shape and the three groups of differently coloured light bulbs are symmetrically disposed about the central axis **22**, of the globe. Thus, the three red light bulbs are arrayed around the central axis **22**, at 120° spacing and the same applies with respect to the three blue light bulbs and the three green light bulbs. In this case, the red dimming device DR in FIG. **1** (not shown in FIG. **2**) controls the intensity of the light emitted by all three red light sources LR **1**, LR **2** and LR **3**; and

similarly the blue dimmer DB, controls the intensity of the three blue light bulbs and the green dimmer GD, controls the intensity of the three green light bulbs. Thus, the colour and intensity of the light issuing from the illuminating device may be remotely controlled by adjusting the control knobs **8,** of the three dimming devices.

It has been found that the arrangement of FIG. **2** produces a high degree of uniformity of the light issuing from the transluscent global housing **20,** so that the globe seems to glow evenly throughout its whole surface with the colour and intensity of light as controlled by the dimming devices.

As indicated earlier, the matte transluscent housing may take any shape. FIG. **3** illustrates another embodiment wherein the housing takes thw shape simulating a candelabrum having three arms **30, 32, 34** and a supporting base, **36.** In this case, each arm includes a plurality of groups of light sources, with each group comprising three closely spaced linear light sources disposed in a common plane. Thus, arm **30** includes the upper group of light sources LR **11,** LB **11,** LG **11**; a second group of light sources, LR **12,** LB **12,** LG **12** thereunder; and any number of further groups of light sources below them. The light souces are linear light sources and are all arranged in a closely spaced relationship in a common plane.

Similarly, arm **32** includes a plurality of group of light sources, each group comprising three closely spaced linear light sources of the different colours (e.g., LR, LB **21,** LG **21**) all disposed in a common plane and similarly arm **34** includes a plurality of group of linear light sources (LR **31,** LB **31,** LG **31**) all disposed in a common plane). It will also be seen that the plane of the light sources in arm **30** is different from that of those in arms **32** and **34.**

In addition, the base **36** of the candelabrum shaped light fixture also includes a plurality of groups of linear light sources (e.g. LR **41,** LB **41,** LG **41**) and likewise the portions **38, 40** connecting the arms to the base also includes a plurality of groups of linear light sources (LR **51,** LR **61**) respectively.

The light sources in each group are disposed very close to each other so that when they are energised, their light will be mixed by the matte transluscent housing of the fixture to produce an output light which is of a uniform colour and intensity according to the control of the respective dimmers.

In the case of the embodiment of FIG. **3,** as in the previous embodiment, there would be one dimmer for each colour of all the groups.

In some applications, it would be desirable to include a white light source controlling the saturation of each colour produced by the illuminating device.

Many other variations, modifications and applications of the illustrated embodiments will be apparent.

What is claimed is:

1. An illuminating device for providing illumination of selectable substantially uniform intensity and colour at the exterior surface of a translucent body of rotation comprising:

a housing of translucent material in the form of a body of rotation, said translucent material glowing in response to illumination thereof;

a least three substantially identical clusters of light sources, the sources in each cluster including respectively the primary colours red, blue and green;

said red, blue and green light sources in said clusters being disposed symmetrically about at least one axis of said housing in predetermined spaced relationship to said body of rotation to provide an unobstructed light path between substantially every point on the surface of said housing and at least one light source of each of said red, blue and green light sources thereby directly to illuminate substantially all points on said housing of translucent material from at least one of said light sources of each of the respective red, blue and green colours; and

means for separately energizing the light sources of each colour to permit illumination of said housing in a multiplicity of selectable colour permutations.

2. An illuminating device according to claim **1** wherein said means for separately energizing the light sources of each colour include means for separately controlling the intensity of the light sources of each colour to provide an increased number of selectable colours of illumination.

3. An illuminating device according to claim **1** and further including at least one white light source and means for controlling the energization thereof.

4. An illuminating device according to claim **3** wherein each cluster of light sources further includes a white light source.

5. An illuminating device according to claim **1** and further including means for remote control of light source energization.

6. An illuminating device according to claim **1** including three clusters of light sources disposed at approximately 120° orientation from each other.

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