

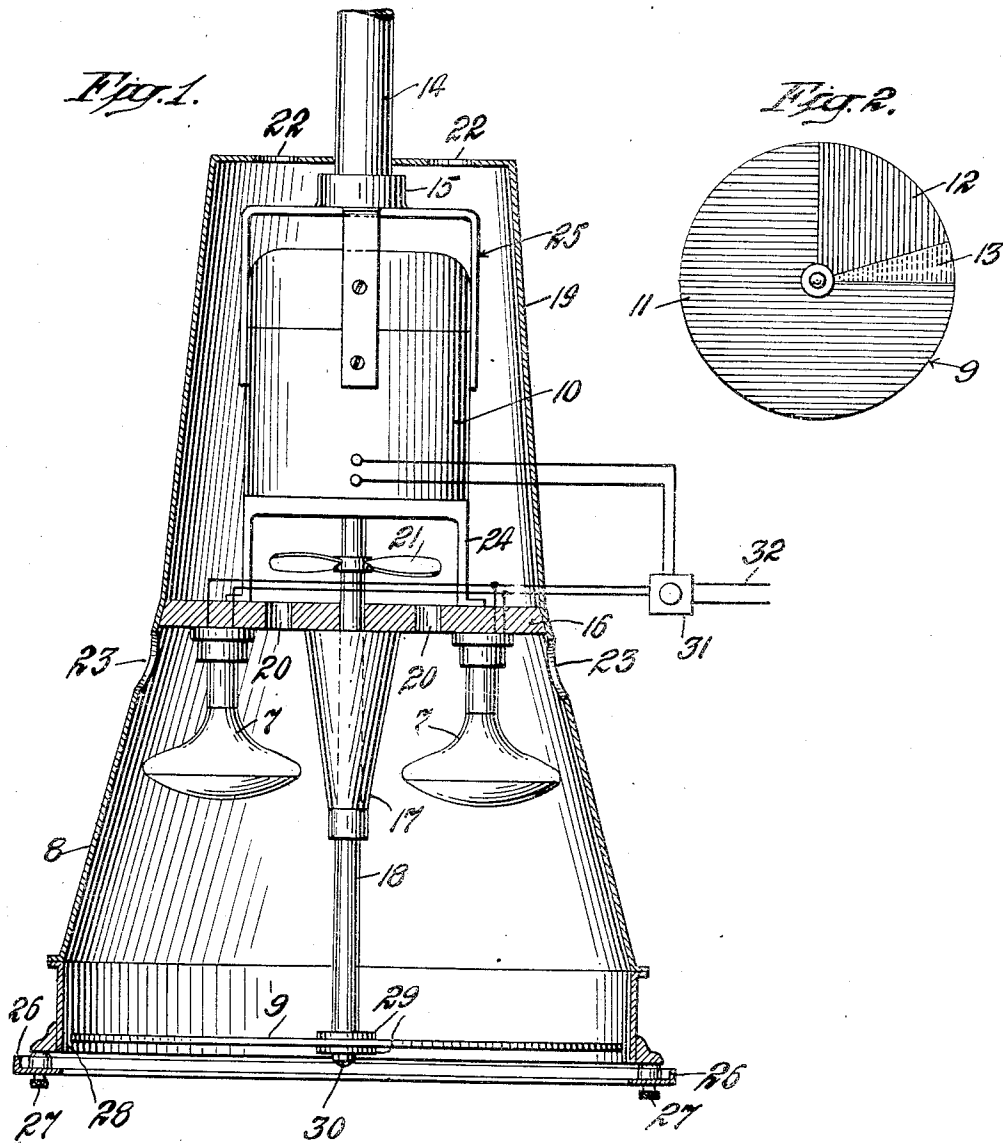
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DAYLIGHT LAMP

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DAYLIGHT LAMP

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4 Claims. (Cl. 240—1.1)

The invention herein disclosed is a lamp for providing the equivalent of daylight illumination.

Previous attempts at obtaining daylight illumination have been open to several objections. In some instances, the light obtained might be satisfactory for the examination of certain colors and unsatisfactory for others. In some cases, the light finally obtained was insufficient for any practical value, even with the use of high wattage lamps. Also the area illuminated would be too small for practical purposes.

The objects of the present invention are to eliminate faults such as described and others, and to provide a daylight lamp for color comparison or other purposes, which will have the advantages of high efficiency, that is, low wattage requirements for a good brilliant level of illumination over an area large enough for all practical purposes; which will have flexibility, enabling ready compensation of the filter system for providing a viewing light having substantially true daylight value or any special type light needed, and which will be accurate for all color comparisons.

The foregoing and other desirable objects are attained by the novel features of construction, combination and arrangement of parts, hereinafter set forth and broadly claimed.

The drawing illustrates one of the present practical embodiments of the invention. Structure however may be modified and changed as regards this particular illustration, all within the true intent and scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a side elevation of the complete lamp, partly in section to disclose internal features of construction.

Fig. 2 is a plan view of the filter disc.

In principle, the invention involves the rapid mixing and projecting of colors, in which the light source is deficient and in the proportions required to produce a true daylight effect.

The mechanism by which this is accomplished, comprises in the illustration, a series of four or more lamps 7, of about 250 watt rating within a reflector housing 8, and in back of a Lucite disc 9, driven at a speed on the order of 3400 R. P. M. by motor 10, and having color segments 11, 12 and 13, of blue, red and yellow respectively.

Usually, this equipment is suspended overhead, to throw the light downwardly on the subjects under examination, it being shown as equipped with a rigid ceiling post 14, firmly connected with the upper end of the motor frame at 15.

The lamps are shown mounted on a transverse partition 16, attached to the lower end of the motor frame and carrying a lower bearing 17, for the spindle 18, which carries the color disc.

Partition 16, also serves in the illustration as a support for the downwardly flaring reflector housing 8, and for the motor enclosure 19, forming an upward continuation of the reflector.

To dispose of a part of the heat generated by the lamps, the partition is shown as having air passages 20, therethrough and the motor shaft or spindle which is attached thereto is shown as carrying a fan 21, back of the partition and design to create a forced draft which will draw in air around and over the edges of the rotating disc and pass it upward and outward through relief openings 22, in the top of the motor housing.

Other ventilating openings may be provided, if desired, in the sides of the reflector housing as indicated at 23.

To provide necessary space for the fan, at the back of the lamp support 16, an open sided spacing bracket 24, may be interposed between the lower end of the motor and said support. A similar mounting bracket, such as indicated at 25, may be provided between the supporting post and the upper end of the motor.

An annular guard 26, is shown removably secured at 27, to the lower end of the reflector housing to prevent accidental contact with the rotating disc and space is indicated at 28, to provide free passage of air up into the housing all about the edge of the rotating disc.

The color disc is shown as removably held between washers 29, on the lower end of the spindle by a securing nut 30.

In Fig. 2, the approximate proportions of the color segments are indicated. In this view, the blue segment takes up about 75% or 170°, the red segment about $\frac{1}{8}$ th or 67.5° and the yellow segment about $\frac{1}{8}$ th or 22.5°.

These proportions may vary but with lamps now available, the blue will largely predominate, with materially less red and much less yellow than red.

The speed of rotation also may vary, but at the speed mentioned, that is, 3400 R. P. M. the daylight effect will be uniform and constant throughout a wide field covered by the reflector, without any observable flicker or flash of individual colors. The vertical elongated form of casing illustrated forms a natural chimney assisting in preventing overheating of the color disc, so that in operation, the fan may not be actually essential. The high speed rotation of the disc tends to keep

it cool enough to prevent warping, cracking or formation of any ripples or unevenness.

Without the fan though and even in some cases with the fan, particularly with more concentrated or intense light sources, it may be desirable to keep the disc spinning for a time after the lamps have been cut off to expedite uniform and even cooling of the same.

For the latter purpose, there may be provided an automatic timing switch in the motor circuit which, after a time, say approximately five minutes, will automatically cut off the motor after a switch has been thrown which cuts off the lamps.

While transparent plastic such as Lucite, because of its exceptional light transmitting qualities, light weight and other desirable characteristics, has been preferred, the invention contemplates that glass or the like may be used in the construction of the color disc.

At present, the light disc is made up by cutting segments of color films in the proportions selected and cementing these between thin layers of Lucite.

These discs can be easily made up in selected color combinations to meet special or unusual conditions and the method of mounting shown enables one color combination to be quickly substituted for another whenever occasion demands.

Details of wiring are not illustrated, further than to indicate that a single control switch 31, may be provided in the supply circuit 32, for turning the lamps on and off, said switch incorporating the necessary timing mechanism for automatically turning the motor off a predetermined period of time after the lamps have been turned off.

The structure is rugged and well designed to take care of the high speed rotation of the color disc under the heat conditions generated by the high intensity lamps. The latter are supported in spaced relation about the extended lower bearing for the motor shafting or spindle. The location of the motor in back of the supporting partition and the lamps in front of the partition within the light reflector casing enables the housing to be kept down to practical overall dimensions.

What is claimed is:

1. A daylight lamp, comprising a vertical suspension post, a vertical shaft motor secured at its upper end to said post, a horizontal partition secured to the lower end of said motor, lamps mounted on the underside of said partition, a light reflector suspended from said partition, a spindle journaled on said partition and forming an extension of the lower end of the motor shaft, a color disc mounted on the lower end of said spindle within said reflector, said motor being spaced above the partition and carrying a fan operating in the space so provided, said partition having air passages therethrough and the edge of the color disc being spaced from the surrounding wall of the reflector to admit flow of air

drawn across the face of the disc up around the edges of said disc.

2. A daylight lamp, comprising a vertically extended chimney-like casing, having upper and lower compartments, the lower compartment opening downwardly and forming a reflector casing, a motor in the upper compartment having a vertical shaft extended downwardly through the center of the reflector casing, a color disc on the lower end of the extended shaft of the motor and lamps within the reflector casing at the sides of the downwardly extended motor shaft, a horizontal partition within the housing separating the upper and lower compartments and forming a support for said lamps and a bearing for the lower portion of the extended shaft, said bearing being carried by said partition and extended downwardly into the reflector casing.

3. A daylight lamp, comprising a vertically extended chimney-like casing, having upper and lower compartments, the lower compartment opening downwardly and forming a reflector casing, a motor in the upper compartment having a vertical shaft extended downwardly through the center of the reflector casing, a color disc on the lower end of the extended shaft of the motor and lamps within the reflector casing at the sides of the downwardly extended motor shaft, a horizontal partition within the housing separating the upper and lower compartments and forming a support for said lamps, a bearing for the lower portion of the extended shaft, said bearing being carried by said partition and extended downwardly into the reflector casing and an air circulating fan on the motor shaft above said partition, the latter being open to pass air therethrough and the color disc being spaced from the wall of the reflector casing to admit cooling air about the perimeter of said disc.

4. A daylight lamp comprising a support, a motor suspended by said support, a horizontal partition below said motor, a source of light beneath said partition, a light reflector supported by said partition, a spindle driven by the motor and extending down through the reflector, a color disc carried by said spindle and disposed within the reflector, a fan above the partition and operated by the motor, said partition having air passages therethrough and the edge of the color disc being spaced from the surrounding wall of the reflector to admit flow of air drawn across the face of the disc up around the edges of the disc and control means for said light source and motor including manually operable switch mechanism for arbitrarily turning on and off the light source at any time and automatic time delay switch means associated with said arbitrarily operable switch mechanism for turning off the motor a predetermined time after the manually operable switch mechanism has been operated to turn off the light source, whereby to continue the air circulation and the color disc in rotation for a time after the light source has been cut off.

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