R. B. HUSSEY.

METHOD AND APPARATUS FOR CORRECTING ARTIFICIAL LIGHT.

APPLICATION FILED JULY 21, 1911.

1,101,026. Patented June 23, 1914.

Fig. 1.

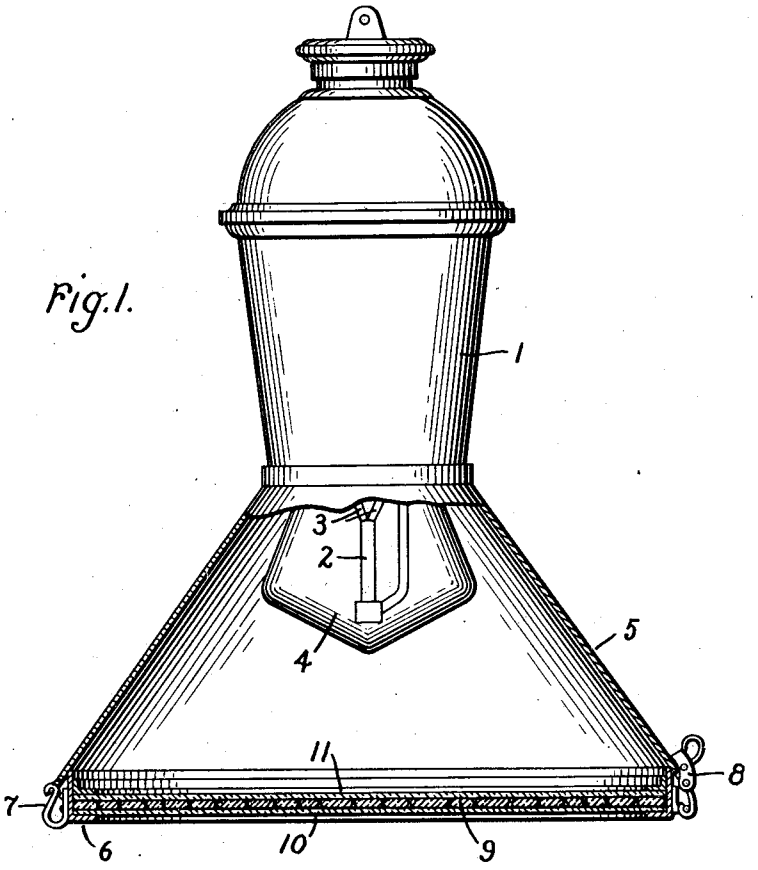
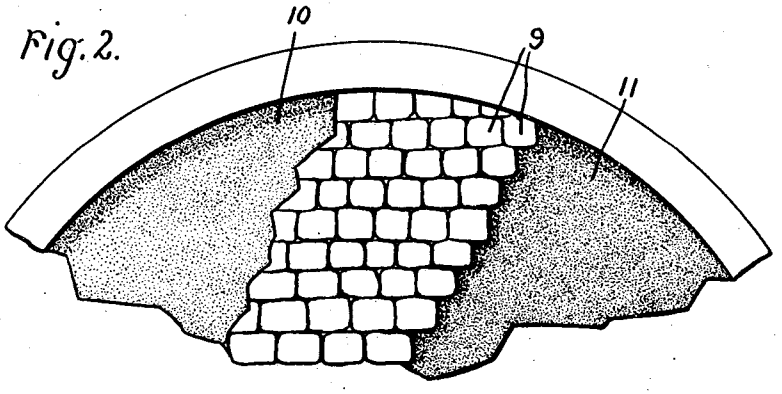


Fig. 2.



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UNITED STATES PATENT OFFICE.

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METHOD AND APPARATUS FOR CORRECTING ARTIFICIAL LIGHT.

1,101,026. Specification of Letters Patent. Patented June 23, 1914.

Application filed July 21, 1911. Serial No. 639,760.

To all whom it may concern:

Be it known that I, RICHARD B. HUSSEY, a citizen of the United States, residing at Swampscott, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Methods and Apparatus for Correcting Artificial Light, of which the following is a specification.

My invention has reference to a method and apparatus for correcting the color value of artificial light.

In places where it is necessary to be able to accurately distinguish and compare colors, as in stores, for the purpose of color matching, in dye works, etc., it is desirable that the artificial light employed should closely approach sunlight in character. Now, it is well known that artificial light generally differs in character from ordinary sunlight with the result that it is impossible to accurately distinguish and compare colors under such light. For example, the light from an inclosed carbon arc contains a greater proportion of red and orange than average daylight, a smaller proportion of the middle of the spectrum and a greater proportion of extreme violet. My invention makes it possible to accurately determine colors under such artificial light and I accomplish this by interposing in the path of the light a transparent medium or media, different portions of which are differently colored, which absorb from the light the desired proportion of the unduly preponderating rays, and then mixing the rays that have passed through the absorbing media by means of a diffusing surface. The light thus corrected closely resembles daylight.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view, partially in vertical section, of an arc lamp in which my invention is embodied; and Fig. 2 is a detail plan view of the screen through which the light passes.

I have shown my invention in connection with an inclosed carbon arc lamp, in the light from which there is a preponderating amount of red and orange rays corresponding to one end of the spectrum and of violet rays corresponding to the other end of the spectrum, but which is deficient in rays corresponding to the middle of the spectrum.

The casing of the lamp is indicated by the reference numeral 1, which, it will be understood, incloses suitable mechanism for the operation of the lamp. A lower electrode 2 coöperates with a pair of upper converging carbons 3 which form the upper electrode, the arc being suitably inclosed by a globe 4. A flaring hood 5 is suitably secured to the casing of the lamp. A frame 6, which carries the screen through which the light must pass, is secured to the hood by a suitable hinge 7 and latch 8. Within this frame is arranged a layer 9 of transparent material, preferably of glass, which is formed by breaking or cutting into small pieces panes or plates of glass which are differently colored. For the purpose of correcting light of the character above indicated, I have found that glass of a light blue suitably mixed with other glass of a bluish green which filter from the light a suitable proportion of the undesirable preponderating rays is satisfactory in practice. The glass may be suitably mixed by simply shaking together the pieces in a suitable receptacle and then placing them upon a plate or pane of glass 10 on which they may either be left loose or to which they may be secured by some clear adhesive material, such as sodium silicate. The glass plate 10, to which the small glass pieces are secured, is preferably roughened for the purpose of diffusing and mixing the light as it passes through the colored pieces. It is also sometimes desirable to place a second pane of diffusing glass 11 above the layer of colored pieces. I have found that pieces of glass which are from a quarter to a half inch square are satisfactory. It is not necessary to have the pieces of glass fit closely together, if allowance be made in arranging and proportioning the different colors for the light that passes through the spaces between the pieces of glass.

The method of correcting the color value of light, such as I have disclosed above, offers the advantage that the character of light obtained may be readily varied by changing the proportion of the differently colored pieces of glass. In most cases, the effect desired is an approximation to daylight, but daylight varies widely in quality and the effect that suits one workman or one class of work would not suit another. The method of correction which I have described enables one to produce the particular light desired, without the necessity of

making up a specially colored glass for each requirement. Furthermore, since the light passes through but one layer of colored glass, the efficiency of the light is not seriously interfered with, as would be the case where a plurality of layers of differently colored materials were used.

It will be understood that, if desired, either of the diffusing surfaces or the inclosing globe itself may be lightly tinted, and this, of course, would have to be taken into account in the arrangement of the colored glass.

While I have shown different portions of the transparent medium through which the light passes made up of separate pieces of material, it will be understood that the different colors might, under some circumstances, be worked into a single pane or plate of glass.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. The method of correcting the color value of artificial light, which consists in passing it through a transparent medium, different portions of which are differently colored and then mixing the light.

2. The method of correcting the color value of artificial light, which consists in interposing in the path of the light a screen comprising a plurality of differently colored transparent media, passing the light through said screen, and mixing the light after it has passed therethrough.

3. The method of correcting the color value of the illumination from a source of light, which consists in intercepting rays of different degrees of refrangibility by suitable transparent media and mixing the transmitted rays to a uniform color.

4. The method of correcting the color value of the illumination from a source of light, which consists in intercepting in part the undesirably preponderating rays by suitable transparent media and mixing the transmitted rays to a uniform color.

5. In a device for correcting the color value of artificial light, the combination of a transparent layer through which the light passes, different portions of which are differently colored, and means for mixing the light so corrected.

6. In a light screen, a transparent medium through which the light passes composed of differently colored pieces, and means located on the side of said medium remote from the light for mixing the light rays.

7. In a light screen, a layer of glass composed of pieces differently colored lying edge to edge, and a diffusing glass located on the side of said layer of glass remote from the light for mixing the light.

8. An apparatus for correcting the color value of the light proceeding from an artificial source, comprising means for intercepting emitted rays of undesirable refrangibility but permitting the transmission of the desirable rays, and means for uniformly mixing the transmitted rays.

In witness whereof, I have hereunto set my hand this nineteenth day of July, 1911.

RICHARD B. HUSSEY.

Witnesses:

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