

UNITED STATES PATENT OFFICE

LEROY J. BUTTOLPH, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO GENERAL ELECTRIC VAPOR LAMP COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY

COLOR FADING CABINET AND FILTER

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My present invention relates to means for subjecting colored articles to the influence of light for the purpose of quickly determining what the life of the colors will be under the influence of sun light or other light, or for comparing the lives of different colors. It further relates to apparatus for subjecting such colored articles to artificial light of substantially the same range of wave-lengths as those of sun light which predominate in causing the fading or the changing of colors under its influence, but of considerably greater effective intensity. It further relates to means for transmitting such artificial light of substantially the same range of wave-lengths as those of sun light which predominate in causing the fading or the changing of colors under its influence, but of considerably greater effective intensity. It further relates to means for transmitting such artificial light and for affecting such light to produce substantially the same range of wave-lengths as those of sun light which effect the fading and changing of colors and in the same relative intensities in which they occur in sun light.

In the fading and changing of colors by sunlight or by artificial light I have found that violet and near ultra-violet light of wave-lengths of from 4,000 to 2,800 Angstrom units cause substantially all of the fading or changing of colors and that light of these wave-lengths from a fused quartz mercury arc lamp fade or change colors with a greater speed than does sun light. I also find that taking the sun light as a standard, more nearly constant results can be produced under different conditions of humidity, temperature and so on, than can be produced with sun light.

But I also find that the energy distribution of the different wave-lengths of light from artificial sources is not equal throughout the range from the red to the ultra-violet. I also find that certain wave-lengths do not affect colors to fade or change them but are absorbed in the articles being subjected to them and transformed into heat therein. I have further found that by using filters of glass, gelatine, and the like I can absorb all those wave-lengths but those desired for

the fading or changing of colors. I have also found that about 10% of the energy from the light source is reflected by the filters used and that when the filter is relatively near to the source of light that considerable time elapses before the dissipation of this reflected energy which never ultimately reaches the work. I have found, however, that by placing the light filter away from the light source that this energy is much more easily absorbed by the air therebetween.

Therefore, it is the object of my invention to provide means for absorbing such light as is not effective in fading or changing of colors and which will transmit only light for example of the wave-length of violet and near ultra-violet, and to absorb even the far ultra-violet.

It is another object of my invention to provide means for absorbing certain proportions of the light used for the fading or changing of the colors to bring the relative intensities of the wave-length so used to the same as in those parts of sun light effective in such fading or changing of the colors.

It is a further object of my invention to provide means for absorbing such wave-lengths as are not effective in fading or changing colors but which are absorbed by the articles subjected to them and are changed into heat therein.

It is a further object of my invention to provide means for testing the fading and changing of colors by artificial light with the sun light as a standard in which the filters used therein are as far away as possible from the light source.

In the accompanying drawings which form part of this application I have shown embodiments of my invention having the above mentioned characteristics. In these drawings

Fig. 1 is an elevation view of a fading cabinet embodying my invention,

Fig. 2 is a plan view in part cut away showing this embodiment of my invention,

Fig. 3 is a sectional elevation view in part showing the interior of the cabinet of Figure 1,

Fig. 4 is a plan view showing another embodiment of my invention,