Dec. 14, 1954 F. G. BEACH 2,697,038

METHOD OF COLOR PHOTOGRAPHY

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Fig. 1

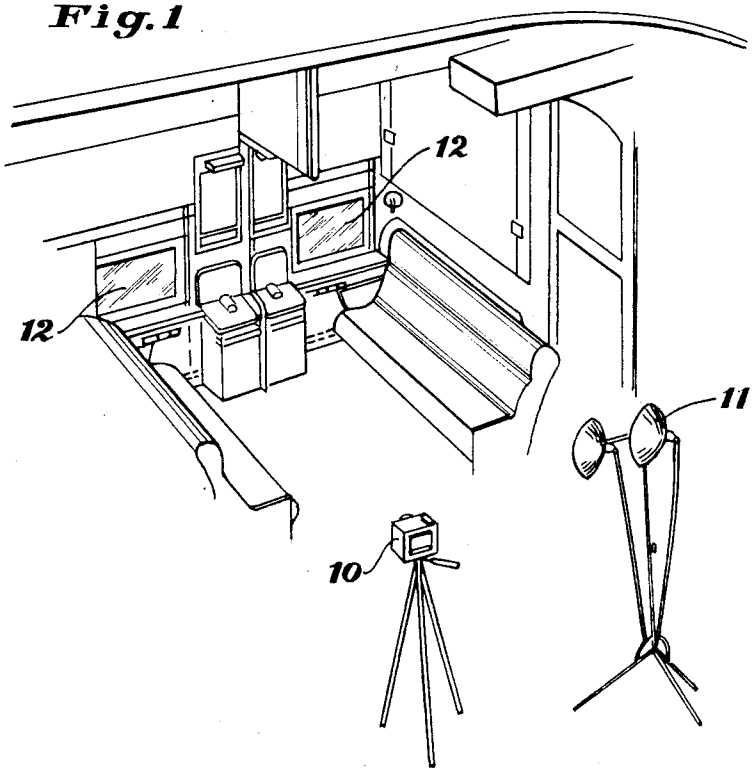
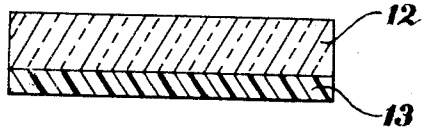


Fig. 2



Frederick G. Beach

INVENTOR.

BY Daniel I. Mayne.
Joe Allen Jones

ATTORNEYS

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METHOD OF COLOR PHOTOGRAPHY

Frederick G. Beach, New York, N. Y.

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2 Claims. (Cl. 95—2)

This invention relates to a method of color photography, and more particularly to color photography of a scene which is illuminated by both natural light and artificial light.

In photographing interior scenes by the use of artificial light of the "mazda" type, wherein the scene is also illuminated by daylight entering through a window or the like, the photographer is faced with the difficult problem of balancing the color temperatures of the two types of light so as to obtain light of the correct type for the film which he is using. Naturally, if he is using color film intended for use with artificial light, the higher color temperature of the outdoor light would result in incorrect rendition of colors in the finished photograph. On the other hand, the use of color film intended for outdoor use in the presence of artificial lighting again causes incorrect color rendition.

There are, of course, various types of artificial lighting equipment such as blue lamps which are intended to give an illumination closely resembling daylight, but such lamps are available in a rather small number of sizes and types, and it is, therefore, not convenient to use them in many cases. It is also undesirable to blank out the daylight entering the scene, since it provides a good source of illumination, and its presence is also helpful if the scene being photographed is to appear completely natural. This is particularly true if the window or the like is visible in the scene which is being photographed.

It has been suggested that filter material in large sheets could be applied to the windows appearing in the scene so as to bring the admitted daylight to the correct color temperature, but such large sheets are quite expensive and are difficult to apply without their presence being obvious, and also without objectionable streaks and reflections being apparent. In the case of a moving object such as a train, where it might be desirable to take interior color photographs for advertising or other purposes, the application of filter material in sheets is even more impractical, since they can be applied and removed only while the train is stopped, whereas if they are used inside, their presence is apparent, as pointed out above.

I have found that the various difficulties explained above can be readily overcome by the use of a strippable lacquer type of coating which is sprayed or brushed on the glass of the windows or other daylight admitting means, this lacquer containing an appropriate coloring agent giving it the property of converting the color temperature of the admitted daylight to approximately the color temperature of the artificial light. This permits the use of color film intended for use with artificial illumination and eliminates undesirable effects resulting from daylight entering the scene.

It is therefore an object of my invention to provide a method of color photography of an interior scene illuminated both by daylight entering through a window or the like and by artificial illumination, wherein the color temperature of the admitted daylight is changed so as to match approximately the color temperature of the artificial light, this being accomplished by applying to the window glass an adherent light transmitting coating colored so as to convert the color temperature of the admitted daylight approximately to the color temperature of artificial light, after which the scene is photographed with color film of the indoor type, that is, color film intended for use with artificial light.

Another object of the invention resides in the providing

of a photographic method as referred to above, wherein the coating applied to the window pane is readily strippable so that it can be easily removed after photographing the scene.

These and other objects of the invention will be more apparent from a study of the following specification when considered in conjunction with the accompanying drawing, wherein:

Figure 1 is a perspective view showing the use of my new photographic method in photographing the interior of a railroad car; and Figure 2 is a detail sectional view of a portion of a window pane to which a coating has been applied in accordance with my invention.

In referring now to Figure 1 of the drawing, there is shown a portion of the interior of railroad car with a camera **10** and source of artificial illumination **11** arranged for photographing the scene. The scene to be photographed includes windows **12** through which daylight enters, and it will be seen that the color temperature of the admitted daylight must be changed in order for indoor type color film to be used successfully in the camera **10**. I accomplished this change in the color temperature of the admitted daylight by applying to the windows **12** a suitable lacquer coating, either by spraying or brushing, which coating contains coloring which causes it to change the color temperature of the admitted daylight to match approximately the color temperature of the artificial light coming from source **11**.

Figure 2 shows the window at **12** and the coating at **13**.

It is desirable that the lacquer which is applied to the window glass or other material be readily strippable after the scene has been photographed, so that the change in the color of the admitted daylight is only accomplished temporarily, and the scene can readily be restored to its original state. Various types of lacquers can be used in the practice of the invention, and they can be sprayed on the window or brushed thereon. The following are examples of lacquer compositions which are useful in the practice of the invention. In each of these examples a clear solution is made up after which coloring matter is added to provide the desired filtering action.

Example 1

A clear lacquer is made up of the following:

	Per cent
Acetone	39.5
Ethyl acetate	30.
Methyl Cellosolve	20.
Ethyl Lactate	10.
Surface active agent	.5

To this solvent mixture there is added 10% by weight of a cellulose acetate containing about 38–41% acetyl. Where the lacquer is to be used for spraying I prefer to use a cellulose acetate having a viscosity of about 57 centipoises (cps.), while for brushing a higher viscosity cellulose acetate is used, for example one having a viscosity in a range of 350–500 cps.

To the clear lacquer there is added the following coloring agents, the percentages being by weight of the lacquer:

	Per cent
Quercetin	6.4
Plasto Brown 2RS	1.3
Artisil Direct Red 3BP	2.2

Plasto Brown 2RS is commercially available from National Aniline Division, Allied Chemical and Dye Corp., 40 Rector St., New York 6, N. Y., and is an unsulfonated mono azo dye. Artisil Direct Red 3BP has color index 234 and is obtainable from Sandoz Chemical Works, Inc., 61–63 Van Dam St., New York 13, N. Y. See Technical Manual and Year Book, American Association of Textile Chemists and Colorists, vol. XXVIII, 1952, p. 256. See also the 1939 yearbook, p. 335.

Example 2

A clear lacquer is made up containing:

	Per cent
Butyl acetate	9.9
#1 denatured alcohol	19.7
Toluol	24.7
Hexane	14.8
Methyl Cellosolve	3.8
Cellosolve acetate	14.8
Cellulose acetate butyrate contining 13–15% acetyl and 35–38% butyryl	11.9
Surface active agent	.4

For spraying it is preferred to use a low viscosity cellulose acetate butyrate having a viscosity of about 24 cps., while for brushing it is preferred to use a cellulose acetate butyrate having a viscosity in the vicinity of 450 cps.

The coloring agents set forth in Example 1 are added to the clear lacquer as in the first example.

Example 3

A solvent mixture is made up as follows:

	Per cent
Acetone	33.5
Ethyl acetate	12.
Cellosolve acetate	12.
Ethyl lactate	4.
Butyl alcohol	8.
Toluol	20.
Surface active agent	.5

To the solvent mixture thus prepared there is added about 10% by weight of cellulose acetate propionate containing about 33% propionate and 13% acetyl.

The same coloring agents set forth in Example 1 are then added to the clear lacquer.

In this example a cellulose acetate propionate having a viscosity of about 42 cps. is used for a sprayable composition, whereas one with a higher viscosity, say about 680 cps., is used for a brushable composition.

Various types of surface active agents may be used in the formulation set forth above, for example aerosol OT (dioctyl sodium sulfosuccinate), diglycol laurate, nacconol NR (alkyl aryl sulfonate), aerosol AY (diamyl ester of sulfosuccinic acid), and artic syntex (a substituted amide).

Various other types of coating compositions suitable for the purposes of this invention can be made up by those skilled in the art. It will be recognized that the solvents used in the lacquer should provide balanced

composition with a smooth evaporation curve. The surface active agent provides the desired ready strippability of the coating.

It will be seen that the use of such an easily applied and removed coating in color photography is a great convenience, particularly where the scene being photographed is the interior of a moving vehicle, such as a train, where it would be impractical to provide any type of exterior means to achieve the same object, and where it is not desired to alter permanently the scene.

While the lacquer formulae which I have set forth are the best known to me, it will be recognized that other formulations may be made up to accomplish the same purpose, and I therefore do not desire to be limited to the use of these particular formulae. My invention resides in the concept explained hereinabove as a method of taking interior color photographs, and is susceptible to numerous variations which will be obvious to any one skilled in the art. It is my intention to cover all such variations coming within the inventive concept as set forth in the appended claims.

I claim:

1. A method of photographing in color an interior scene illuminated both by daylight entering through a window or the like and by artificial illumination, comprising applying to the window a solution of a strippable film forming composition containing coloring which changes the color temperature of the admitted daylight to match approximately the color temperature of the artificial illumination, which solution on evaporation of the solvent forms an adherent light transmitting solid sheet, and photographing the scene on color film intended for use with artificial light, said coloring comprising quercetin, Plasto Brown 2RS and Artisil Direct Red 3BP.

2. A method according to claim 1, wherein said solution comprises a lower alkyl ester of cellulose in solution in a quick drying solvent mixture containing a surface active agent.

References Cited in the file of this patent

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