PATENT SPECIFICATION

303,357

Convention Date (France): Dec. 31, 1927.

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Complete Accepted: April 22, 1930.

COMPLETE SPECIFICATION.

Improvements in the Projection and Printing of Films Bearing Picture Records for use in Colour Photography or Cinematography.

We, SOCIÉTÉ FRANCAISE CINECHROMATIQUE (PROCEDES R. BERTHON), of 24, rue de la Pepiniere, Paris, France, a French body corporate, Assignees of SOCIÉTÉ CIVILE POUR L'ETUDE DE LA PHOTOGRAPHIE ET DE LA CINEMATOGRAPHIE EN COULEURS, resident in 9—11, Boulevard de Villiers, Neuilly (Seine), France, a French Company, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In the known process for projecting photographic or cinematographic colour-record pictures on lenticular films of the type disclosed in Berthon's Patent Specification No. 10,611/09 excellent results are obtained when directly projecting a positive film obtained by chemically reversing a negative film exposed in the view-taking apparatus. When the negative film is to be reproduced photographically, however, disadvantages arise from the resulting image of the reticulation network.

The known practical procedure is as follows:

The negative film obtained when taking a picture is transformed into a positive film. This positive film is then printed by projection upon a sensitive film in order to obtain a negative film which, after being chemically reversed, becomes a positive, ready for final projection. Now, the sensitive film upon which the positive resulting from the chemical reversal of the negative is reproduced bears the image of the reticulation network of the original film. This image of course spoils subsequent projection of the film, since the picture projected on the screen is interspersed with coloured stripes.

In Specification No. 265,069 is disclosed a process whereby the above disadvantage is obviated by dividing the projection beam with the aid of an optical system comprising two prisms, into three zones perpendicular to these coloured stripes. In this way, portions of the said stripes are superposed so that the colour stripes disappear.

The present invention relates to an arrangement for reproducing colour-record pictures on linear lenticular films by projection-printing on sensitive linear lenticular film material with the elimination of colour stripes.

The arrangement according to the present invention consists in interposing between the objective and the sensitive lenticular film a diffraction system such as a screen having alternate opaque and transparent bands the lines of the screen being set parallel to the lenticulations of the film, and displacing the diffraction system parallel to itself along the optical axis of the projection system until the image of the network of the original film disappears in the plane of the sensitive film.

The simplest amongst the diffraction systems which may be used is a diffraction grating or screen having alternate opaque and transparent narrow bands, but any convenient diffraction device may be employed. A screen having alternate opaque and transparent bands however has the advantage that diffraction is produced perpendicularly to the bands of the screen only and that, therefore, the sharpness of the image is not affected in a direction parallel to the said bands.

Figure 1 of the accompanying drawing illustrates diagrammatically in plan, a suitable arrangement of the diffraction device in a reproducing apparatus.

Figure 2 shows a vertical elevation of the diffraction grating C of Figure 1.

It will be seen that this grating C is arranged at right angles to the optical axis of the system and so that the diffraction lines are parallel to the linear lenticular elements of the film A to be copied, and the blank film D. B is the usual objective.

The distance of the grating C from the films A and D depends on the width of the diffracting elements but it must be so arranged that the image of the lines

of intersection of the lenticular elements of the film A are suitably effaced from the film D. This distance can be determined mathematically by the use of Fresnal integrals, or graphically by the radiod of the Cornu arcs. However, it is sufficient to take any commercial grating and merely displace it parallel to itself along the optical axis of the projection system until the image of the network of the original film disappears in the plane of the reproduction film.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

An arrangement for reproducing colour-record pictures on linear lenticular films by projection-printing on sensitive linear lenticular film material with the elimination of colour stripes resulting from the image of the reticulation network of the original film, consisting in interposing between the objective and the sensitive lenticular film a diffraction system such as a screen having alternate opaque and transparent bands, the lines of the screen being set parallel to the lenticulations of the film, and displacing the diffraction system parallel to itself along the optical axis of the projection system until the image of the network of the original film disappears in the plane of the sensitive film.

Dated this 14th day of December, 1928.

SOCIÉTÉ FRANÇAISE CINECHROMATIQUE (PROCÉDÉS R. BERTHON),
Per Boult, Wade & Tennant,
111/112, Hatton Garden, London, E.C. 1,
Chartered Patent Agents.

Reference has been directed, in pursuance of Section 8, Sub-section 2 of the Patents and Designs Acts, 1907 to 1928, to Specification No. 274,848.

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[This Drawing is a full-size reproduction of the Original]

Fig.1.

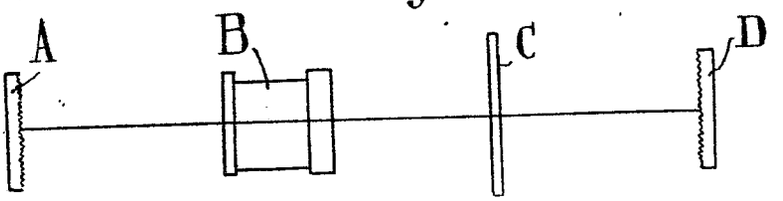
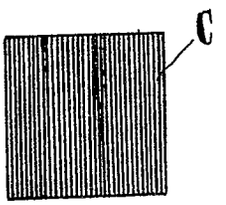


Fig.2.



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