PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in or relating to Selector Screens for Colour Photography and Cinematography.

We, SOCIÉTÉ FRANÇAISE CINECHROMATIQUE (PROCEDES R. BERTHON), of 24, rue de la Pepiniere, Paris, France, a French Société Anonyme, as assignees of SOCIÉTÉ CIVILE POUR L'ETUDE DE LA PHOTOGRAPHIE ET CINEMATOGRAPHIE EN COULEURS, resident in (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:—

This invention relates to an improvement to selector filters used with films having refractive microscopic elements.

The following statements and the diagrammatic drawing appended hereto will render the characteristics of this invention clearly understood.

According to the principle set forth in Rodolphe Berthon's Patents, if a film with refractive microscopic elements is illuminated by means of an object-glass provided in its nodal plane with a three-colour selector filter, each of the said refractive elements reproduces a true image of the three-colour selector disc.

Taking for example a linearly embossed film the refractive elements of which are semi-cylindrical, when this film is illuminated by an object-glass having a three-colour filter as shown in Figure 1 of the accompanying drawings a coloured image as shown in Figure 2 should in theory be seen, through a microscope, behind the refractive elements. That is to say, each of the three zones: red A, green B, violet-blue C, of the three-colour filter should give three zones coloured red, green and violet-blue, sharply defined and clearly divided behind each linear element (Figure 2).

However this is not the case in practice. Microscopic examination shows the coloured zones behind each linear element as indicated in Figure 3. As will be apparent, the green zone B is always as sharply divided from the red zone A and from the violet-blue zone C as in Figure 2. But at the border line of two adjacent linear elements and along the ridge that separates them, the red zone A and the violet-blue zone C (while sharply limited at their border line with green) merge into one another at their own border line. The result is a diffuse zone which is a mixture of red and of violet-blue.

This overlap involves a most disturbing consequence when projecting films having refractive elements. There may be seen, at both edges of the projecting screen, on the right and on the left, a general dominating hue which, becoming more conspicuous from the centre towards the edge, is pink or reddish, produces a most unpleasant effect and spoils the other colours projected in the said region.

The improvement of this invention aims at removing these dominating hues, when the image is projected on a screen by doing away with the colour overlap of red on violet-blue at the border line between two refractive elements.

For this purpose, and as shown in Figure 4, the selector filter has not three but five monochrome zones both for taking and projecting purposes, i.e. three selector zones, red, green, violet-blue and two compensating zones, one of which (D) is green-yellow and the other (E) orange-yellow.

The green-yellow compensating zone limits the red selector zone of the filter. Those two colours are complementary.

The yellow-orange compensating zone limits the blue-violet selector zone. These two colours are also complementary colours.

Under the action of the obliquity of the pencils of light striking the marginal linear elements of the image, the blue-violet zone tends to spread towards the red zone of the next element and to merge therewith.

But then blue-violet from the edge of the selector filter merges with the yellow-orange of the adjacent compensating filter and produces a neutral grey which has no effect on the general hue of the projection screen.

The green-yellow compensating filter acts in the same respectively to the red filter. In the portion where red has a tendency to overlap blue-violet from the next element, the said red merges with its green-yellow compensating complementary colour and forms a neutral grey hav-

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ing no effect on the bordering colour of the projection screen.

The above indicated colours are mentioned only as examples. With other colours used as selectors, the compensating filters have likewise other colours, but in order to fulfil the purpose the latter must always be complementary colours of the selector colour which it touches and must neutralise.

With a suitable arrangement of the compensating zones it is of course possible (by eliminating dominating hues on the screen) to project films which have embossed lenticular refractive microscopic elements punctiform in shape.

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

1. Improvement in selector filters (comprising a red zone, a green zone and a blue-violet zone) used with films having refractive microscopic elements with the object of doing away with dominating hues when projecting on a screen, by suppressing the coloured overlap of red on blue-violet at the border line of two refractive elements, the said improvement essentially consisting in providing the selector filter, in addition to its three monochrome zones, with two compensating zones, one of which is green-yellow and limits the red selector zone of the filter, the other of which is orange-yellow limiting the blue-violet selector zone.

2. Applying the improvement according to claim 1 to selector filters comprising any selector colours, the compensating zones characteristic of the invention having always a complementary colour of the selector colour which it touches and must neutralise.

3. The use of a selector filter according to Claims 1 and 2 for taking and projecting purposes with films having linear refractive or lenticular refractive microscopic elements.

Dated this 23rd day of July, 1928.
SOCIÉTÉ FRANÇAISE CINE-CHROMATIQUE
(PROCEDES R. BERTHON),
Per Boult, Wade & Tennant,
111 & 112, Hatton Garden, London,
E.C. 1,
Chartered Patent Agents.

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Fig.2.

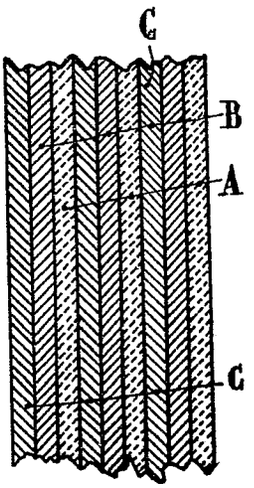


Fig.1.

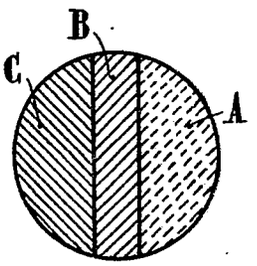


Fig.3.

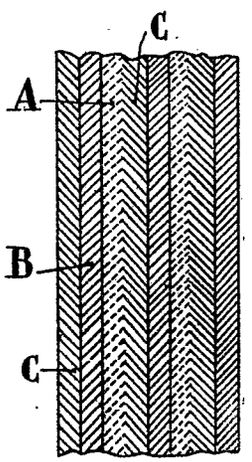


Fig.4

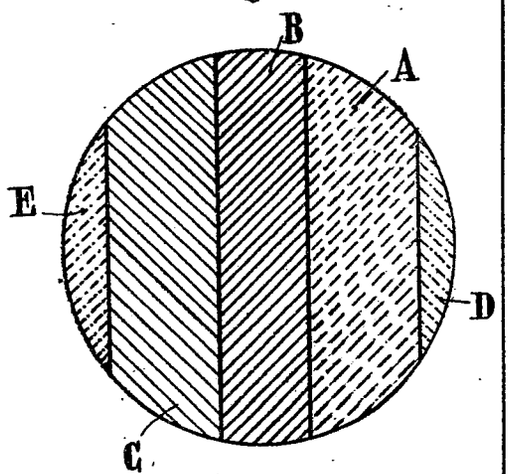
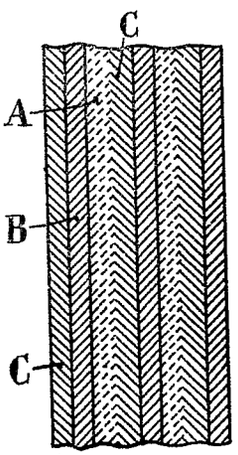


Fig.3.



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