

PATENT SPECIFICATION

400,057

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COMPLETE SPECIFICATION.



Improvements relating to the Printing of Lenticular Colour-record Films.

We, I. G. FARBENINDUSTRIE AKTIEN-GESELLSCHAFT, a Joint Stock Company organised according to the laws of Germany, of Frankfurt a/Main, Germany, 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:—

10 Lenticular colour-record films which are developed once only, that is to say not according to the reversal development, always show a very unfavourable distribution of light under the different lenticular elements, so that the colours reproduced are not the actual colours. These bad results are, for instance, produced when printing on to a light sensitive lenticular film a negative lenticular film or a partial colour negative film, and developing once only to obtain a positive.

25 According to this invention useful pictures from lenticular colour-record films can be obtained with a single development if the distribution of light under the different lenticular elements be corrected. Various experiments have shown that the colours can be reproduced in a sufficient purity when in the finished positive the middle part of each area corresponding with an image of a strip of the filter has the greatest permeability to light. For this purpose, the printing operation is so conducted that the marginal parts of those areas of the emulsion layer behind the lenticular elements which are to receive the different colour sensations are illuminated most, whilst the illumination is lessened towards the middle parts of those areas.

40 These conditions may be realised, for example, by using in the printing operation (which may be optical printing or contact printing and may be conducted, for example, in the manner described in Specification No. 356,701 or 392,987) in the plane corresponding with that of the multi-colour filter a diaphragm or filter having the same size as the multi-colour filter and so constructed that the light impinging on the areas of the diaphragm or filter corresponding with the different colour strips of the multi-colour filter can

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pass unhindered only at the margins of each area, whilst the light is obturated in the middle of each area.

The invention will be more fully explained with reference to the accompanying drawing, in which:

Fig. 1 shows the curve of the permeability of a three-colour filter of the colours blue, green and red (*b*, *g*, *r*) which is suitable for the present process. The ordinates are graduated in divisions of permeability, and it will be seen that the permeability is greatest at the margins of the filter strips and decreases towards the middle of the strips.

Fig. 2 shows a filter and Figs. 3 and 4 show diaphragms, answering the condition represented in Fig. 1, the diaphragm of Fig. 4, however, answering this condition only approximately. The construction of the filter and the diaphragms is such that the curve of the light permeabilities which can be drawn when determining the total permeability for each line running parallel to the limiting lines of the filter strips is of similar form to that of Fig. 1. According to Fig. 2 this result is attained by blackening the different colour strips each with varying intensity, for instance, by the application of a suitable dye, for instance, neutral grey, the blackening being most intense in the middle of each strip. In Fig. 3 and Fig. 4 the filter strips are obturated by opaque diaphragms (B) of a suitable geometrical shape producing the desired result.

For the contact-printing process (compare, for instance, Specification No. 392,987), there may be used sources of light with as little extension as possible in the direction of the lenticular embossing. Such a source of light is diagrammatically represented in Fig. 5. To correct the distribution of light there may be arranged before this source of light, as seen from Fig. 5, filter planes of the same kind as shown in Fig. 2, having a blackening which increases towards the middle thereof. Instead of such planes there may be used opaque diaphragms of a suitable geometrical form, for instance as represented in Fig. 6.

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:—

- 5 1. The improvement in producing colour-record images on lenticular films by photographic printing, which consists in illuminating most at their marginal parts each of those areas of the emulsion layer
10 behind the lenticular elements which are to receive the different colour sensations in the printing operation, and lessening the illumination towards the middle part of the area.
- 15 2. For use in producing colour-record images on lenticular films by photographic printing by means of the improvement claimed in claim 1, a diaphragm or filter
20 subdivided into strips which have a maximum transparency at their marginal parts and a diminished transparency in their middle parts.

3. A filter as claimed in claim 2, having a transparency which diminishes increasingly from the marginal parts of each strip of the filter towards the middle
25 of the strip.

4. For use in producing colour-record images on lenticular films by photographic printing, a filter or diaphragm constructed
30 substantially as described with reference to any of Figs. 2—6 of the accompanying drawing.

5. A lenticular film bearing behind the lenticular elements exposed strips each of
35 which corresponds with a colour sensation and has a transparency which is greater at its middle part than at its marginal parts.

Dated this 16th day of February, 1933.

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Agents for the Applicants.

Fig. 1

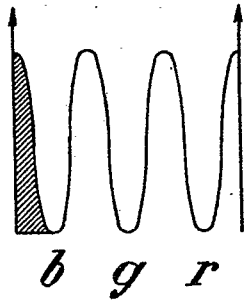


Fig. 2

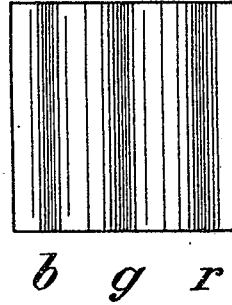


Fig. 3

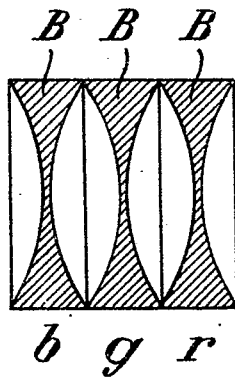


Fig. 4

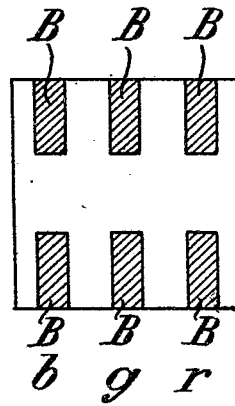


Fig. 5

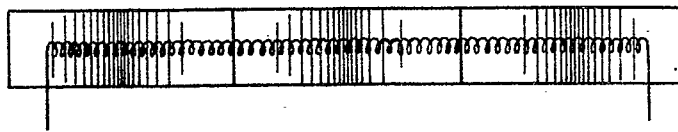
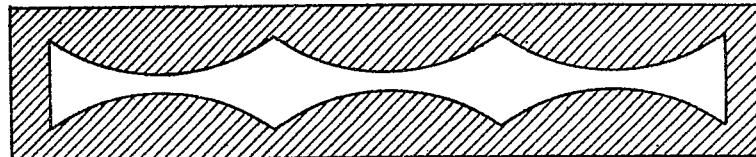


Fig. 6



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