PATENT SPECIFICATION


We, I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, 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:

This invention is an improvement in or a modification of that described in Specification No. 356,701.

That specification relates to a process of printing colour record images contained on a lenticular film by optical means on to another lenticular film, without lateral inversion, wherein the negative film is illuminated, from the side next the refracting surface, in such a manner that a luminous plane is projected on the negative film. A special mode of carrying out this process with the object of avoiding any overlapping of the interference pictures formed, consists in placing in that plane of the optical system which occupies the same position relatively to the negative as did the plane of the multi-colour filter or its virtual image during the taking of the negative film a diaphragm having apertures arranged in steps (see Fig. 3 of Specification No. 356,701).

According to the present invention the said diaphragm is dispensed with, and the negative film is illuminated by means of an incandescent lamp, the filaments of which are arranged in the form of steps in the same manner as the apertures of the said diaphragm (that is to say, in such a manner that a line drawn in the plane of the filaments perpendicularly to the direction of the stripes of the filter will intersect only one filament) and lie in a common plane perpendicular to the optical axis and occupying the same position with respect to the negative film as did the plane of the multi-colour filter or its virtual image during the taking of the negative. By this arrangement a uniform illumination of the film is obtained and all the light projected to the negative film is available for printing. Subject to the observance of the condition above indicated that a line drawn in the plane of the filaments perpendicularly to the direction of the stripes of the filter shall intersect only one filament, the filaments may have any position within the space corresponding with one colour area; however, in a preferred arrangement, the filaments are arranged in such a manner that their optical centres lie each on one of the straight lines drawn parallel to the direction of the filter stripes through the points occupied by the optical centres of the stripes or of their virtual images during the taking operation.

In the accompanying drawing there are shown two ways of arranging the filaments of the incandescent lamp, which are preferably in the form of coils for the purpose of obtaining a better yield of light when a three-colour filter was used for taking the negative. The parallel coils are arranged at distances apart equal to those between the optical centres of the filter stripes, and preferably parallel to the filter stripes. The plane of the colour screen is represented in broken lines. The coils may be connected in series (as shown in Fig. 1) or in parallel (as shown in Fig. 2). In this latter case the current may be supplied to each coil separately. This arrangement has the advantage that the luminosity of each coil may be the same or, if in the print a colour is predominant, owing, for instance to a mistake in taking the negative, this colour can be corrected by reducing the luminosity of the respective coil.

The extension of the glass bulb of the incandescent lamp in the direction of the negative film must be smaller than the distance of the virtual image of the colour screen from the negative in taking the negative film. Preferably the glass bulb is such that no reflected pictures are projected on the negative printing gate. For this purpose the bulb may be given a suitable form, or the face of the bulb remote from the negative may be dulled or blackened.

The invention is not limited to the arrangements shown in the drawing.
being understood that these are only
given by way of example. The wire fila-
ments may be arranged in the same bulb
or in several bulbs.

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

1. A process of printing, by optical
means a colour-record negative contained
on a lenticular film on to another lenti-
cular film, without lateral inversion,
according to Specification No. 356,701,
wherein the stepped diaphragm used for
eliminating the effects of lateral diffrac-
tion spectra is dispensed with and the
negative film is illuminated by means of
a number of incandescent filaments con-
tained in one or several lamps and equal
to the number of colour areas of the
multi-colour filter used in taking the
negative, these filaments being arranged
in steps in the same manner as the
apertures of the said diaphragm and lying
in the plane occupying the same position
with regard to the negative film as the
plane of the multi-colour filter or its
virtual image during the taking of the
negative.

2. A process as claimed in Claim 1,
wherein the filaments are parallel to one
another.

3. A process as claimed in Claim 1 or
Claim 2, wherein the filaments are
arranged with their optical centres each
on one of the straight lines drawn parallel
to the filter stripes through the points
occupied by the optical centres of the
stripes or their virtual images during the
taking of the negative.

4. A process as claimed in Claim 1,
2 or 3, wherein the filaments are parallel
to the filter stripes.

5. A process as claimed in Claim 1,
2, 3 or 4, wherein the filaments are
arranged in series.

6. A process as claimed in Claim 1, 2,
3 or 4, wherein the filaments are arranged
in parallel.

Dated this 26th day of September, 1932.

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Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1933.