

PATENT SPECIFICATION

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COMPLETE SPECIFICATION.



**Process and Apparatus for the Production of Stereoscopic Films
Utilising Films of Keller-Dorian Type.**

We, SOCIETE FRANCAISE DE CINEMATOGRAPHIE ET DE PHOTOGRAPHIE FILMS EN COULEURS KELLER-DORIAN (formerly known as Societe du Film en Couleurs Keller-Dorian), a Societe Anonyme organised under the laws of France, of 42, rue d'Enghien, Paris, France, 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:—

Stereoscopic principles can be applied to fixed or animated projection according to known methods of Anaglyphs or by covering the right and left images alternately by synchronised apparatus, such as the shutter of the projection apparatus and a special pair of binoculars placed before the eyes of the observer.

Whatever be the method of procedure chosen for the stereoscopic vision, the images projected pertain to stereoscopic pairs taken from different points.

These images can be placed either one beside the other or one below the other.

In cinematography, for example, in the former case the images must have a size 18 x 12 mm. instead of 18 x 24 mm.

In this case, the individual images are of smaller size and the largest side of the image is perpendicular to the usual direction.

In the second case, that is if one image is below the other or if the images are superposed, images of normal size may be used, but it is necessary to accelerate the rate of projection so that the retinal persistence shall be maintained. This causes abnormal wear in the projection apparatus.

The invention has for a purpose to obviate these disadvantages. It consists in utilising what are known as Keller-Dorian films, that is films having dots or "picots", fluting, goffered or printed lines, forming spherical or cylindrical lenses as the case may be, for making positive stereoscopic films, where the two negative images of the ordinary stereoscopic films are made into a single image in accordance with the process hereinafter described.

[Price 1/-]

The invention will be more readily understood by those skilled in the art to which it relates by the following description when taken in connection with the accompanying drawing in which:—

Fig. 1 is a diagram illustrating one phase of the process;

Fig. 2 is a diagram illustrating another phase of the process;

Fig. 3 is a part view of a Keller-Dorian film;

Fig. 4 is another explanatory diagram illustrating a phase of the process; and

Fig. 5 is a view of a shutter.

Referring to the drawing more in detail, A represents a Keller-Dorian film placed at the focus of an objective B. Said film has the property of being able to represent the equivalent of an opaque screen or a part of the screen placed at the centre of the optical objective B.

If the objective B is placed in front of an object D (Fig. 1) the Keller-Dorian film placed at the focus will receive an image of the said object. Moreover, if an opaque screen C is interposed at the optical centre, covering half of said objective, each cell of the Keller-Dorian film will reproduce, as follows:—

First. The image of a portion of the field of the photographic object D.

Second. The impression of said cells only in the part E corresponding to the portion E¹ not covered by the objective (Fig. 2), the part F corresponding to the shutter C being entirely unaffected.

From the foregoing it will be obvious that at as short a time interval as possible, the right image and then the left image alternately of a stereoscopic pair are taken on the same part of a Keller-Dorian film.

Fig. 3 represents a section of Keller-Dorian film in which the right images of a stereoscopic pair have been juxtaposed.

The method of procedure may be simplified as follows:

First. Printing of a positive of the negative stereoscopic original film having two images.

Second. Printing on Keller-Dorian film of the stereoscopic pair.

Third. Reversal of said film which furnishes a positive stereoscopic copy.

We may also print directly the positives of the original negative, provided that
5 the Keller-Dorian film which is to provide the positive copies is produced by any suitable means.

The optical device for printing comprises optical means provided with an
10 aperture suited to the circumstances and determined by the number of picots, lines, flutings or the like as well as by the thickness of the film, and so on, and is constructed in such wise that a shutter with
15 perforated blades can be introduced at its centre, the apertures therein corresponding to the two portions of the lens that are alternately uncovered.

The aperture is determined as in specification No. 261,363 where the aperture
20 corresponding to each line of the goffered film (regarded as the aperture of a small lens) should be greater by from 10 to 40 per cent than the aperture corresponding to the objective which takes the views.

For example, in Fig. 4, the original film G, either negative or positive and
25 having two superposed images, is passed into the printing means by displacing twice for one displacement of the Keller-Dorian image A¹, which is stereoscopic.

The shutter C, the details of which are shown in Fig. 5 will uncover each time the
30 portion on which the right or the left image is exposed. In printing the stereoscopic pair, suitable mechanical devices will cause the displacement of a portion of Keller-Dorian film corresponding to an
35 image and that of one of the images of a new stereoscopic pair. The shutter will then uncover the said image pertaining to the stereoscopic pair which will be received on the Keller-Dorian film A¹ upon
40 a half of the cells thereof. The second image of the stereoscopic pair will advance in front of the objective, the shutter will mask the portion corresponding to the printed part of the cellulose. Thus the
45 second image will be recorded in the part of the cells left blank while printing the first image.

For projecting a stereoscopic Keller-Dorian film made according to the invention,
50 the method of anaglyphs may be used or any other method where the observer will alternately see the right and left images corresponding to the two different points of exposure.

In the case of anaglyph images, there
55 may be used an optical system having adjustable prisms, for example, on the objective of projection. A coloured screen is placed before each prism which
60 screen is green for one prism and red for the other. The observer will be furnished

with a pair of bi-colour binoculars corresponding to the colours chosen for projection.

In the case where it is desired to utilise
70 synchronised projection of the shutter and a special glass or other similar device, the shutter of the projection apparatus is constructed so that the two prisms will be uncovered alternately in synchronism with the observing device.

The projection of a stereoscopic Keller-Dorian film may be effected by the aid of
75 an objective provided at the optical centre with two red and green screens and a shutter of the type described, situated substantially in the same position as these
80 screens which is the optical centre of the combination. It will therefore be noticed that this comes within the case of anaglyphs.

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

1. A method of making positive stereoscopic films which comprises the optical
90 production of the two negative images of an ordinary stereoscopic film as two images superposed on a Keller-Dorian film, each image corresponding to one
95 position of the diaphragm.

2. A method of making positive stereoscopic films which comprises the optical
100 production of the two negative images of an ordinary stereoscopic film as two images superposed on a Keller-Dorian film having picots each image corresponding to one position of the diaphragm.

3. A method of making positive stereoscopic films which comprises the optical
105 production of the two negative images of an ordinary stereoscopic film as two images superposed on a Keller-Dorian film having fluting, each image corresponding to one
110 position of the diaphragm.

4. A method of making positive stereoscopic films which comprises the optical
115 production of the two negative images of an ordinary stereoscopic film as two images superposed on a Keller-Dorian film having lines, each image corresponding to one position of the diaphragm.

5. A method of making positive stereoscopic films which comprises the production
120 of a positive from a negative stereoscopic original having two images, reproducing the stereoscopic pair on a Keller-Dorian film and reversing said
125 Keller-Dorian film for obtaining a positive stereoscopic copy.

6. A method of making positive stereoscopic films which comprises the production
130 of a Keller-Dorian film carrying the negative image to be copied and making

positive stereoscopic copies directly from said Keller-Dorian film.

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7. Method of and means for making positive stereoscopic films substantially as described with reference to the accompanying drawings.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

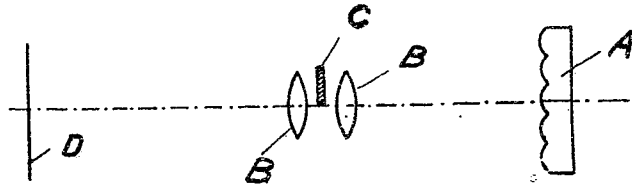


Fig. 2

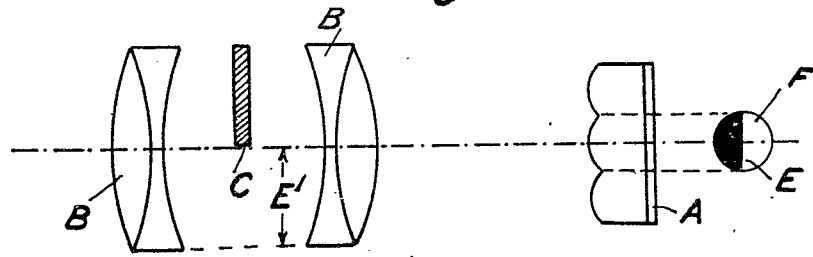


Fig. 4

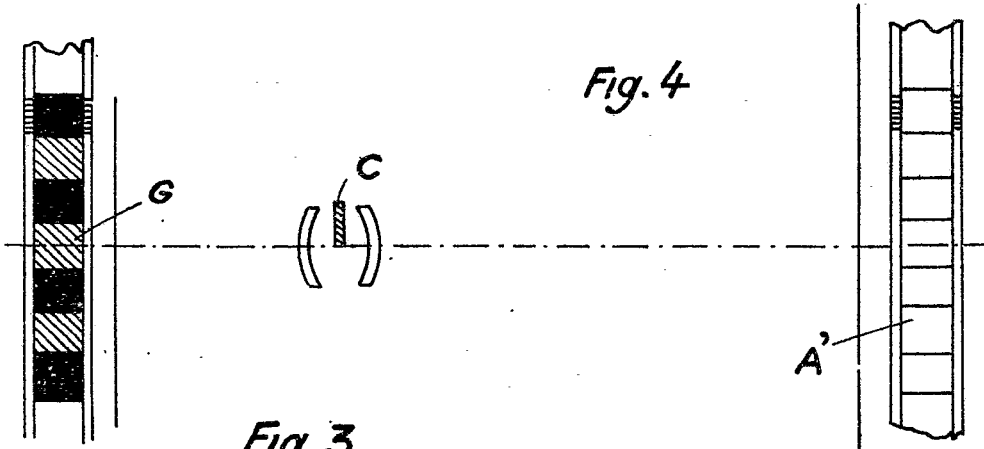


Fig. 3

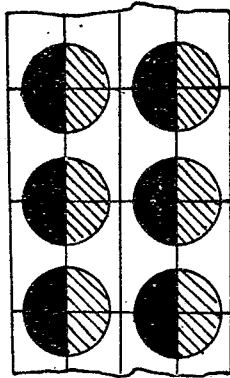


Fig. 5

