

June 24 , 1924.

1,499,230

E. A. LAGE

METHOD OF PRODUCING PHOTOGRAPHIC PLATES FOR INDIRECT TRICOLOR PHOTOGRAPHY

Filed July 25, 1921

2 Sheets-Sheet 1

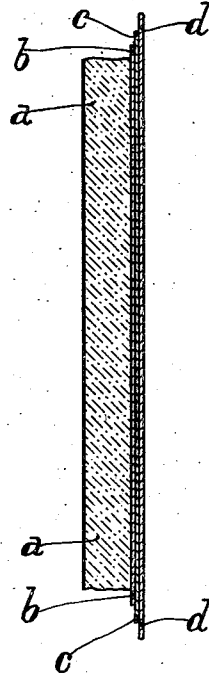


Fig. 1

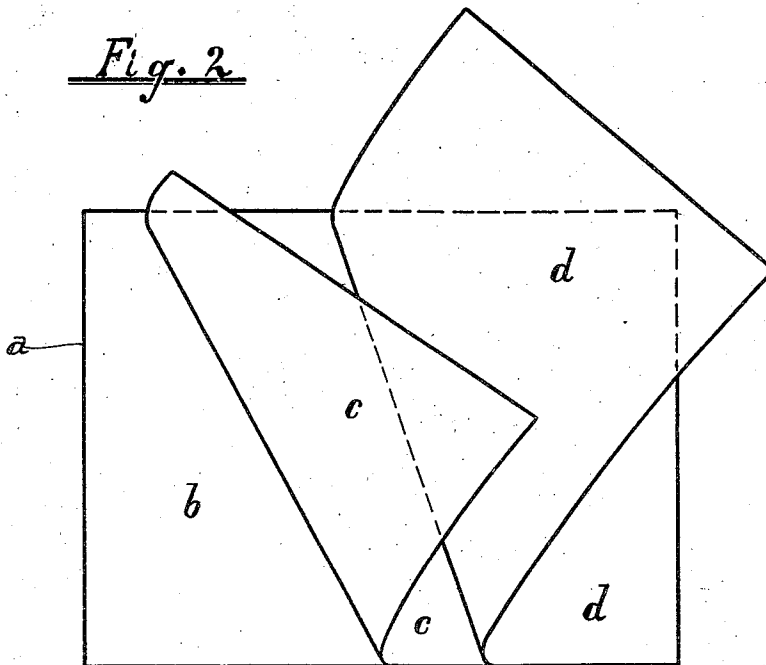


Fig. 2

INVENTOR.

E. A. Lage.

by *[Signature]*
Att'y.

June 24, 1924.

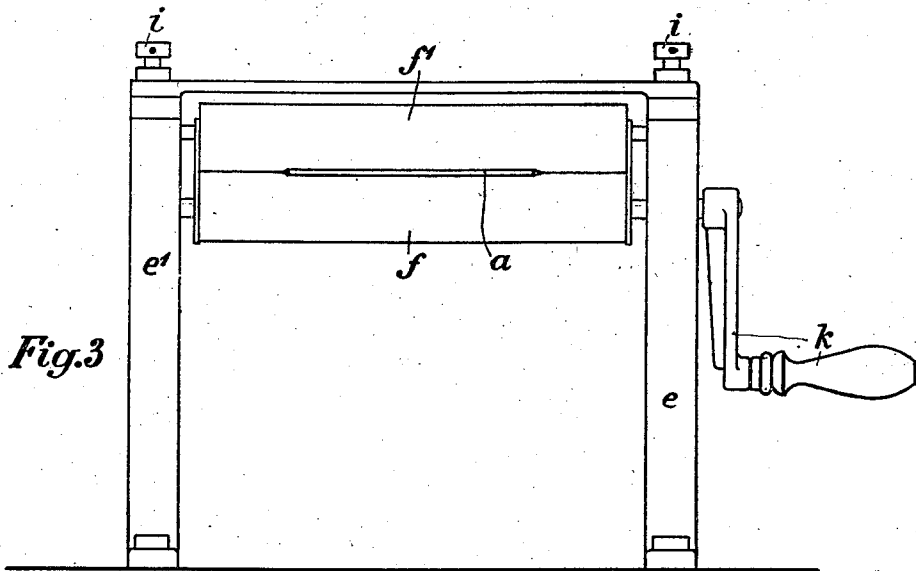
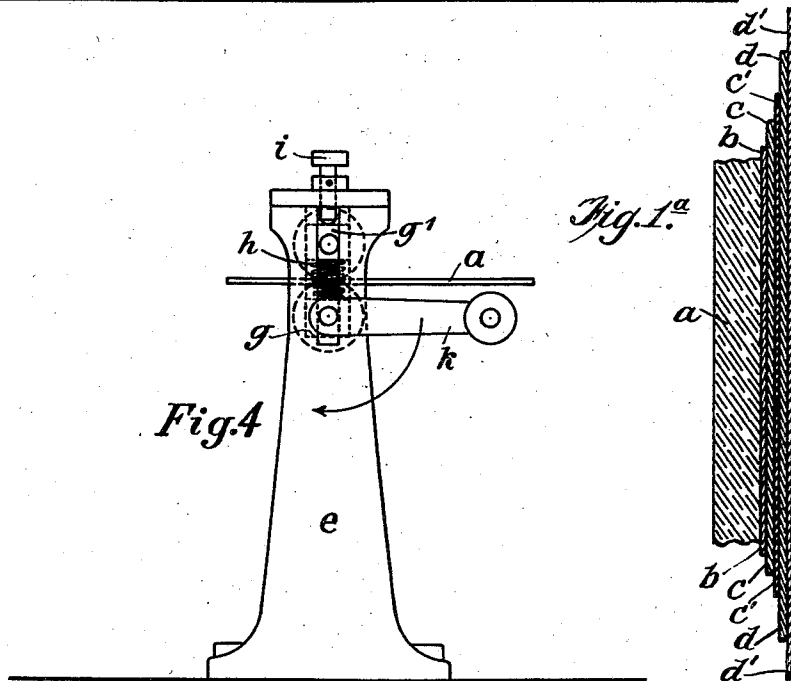
E. A. LAGE

1,499,230

METHOD OF PRODUCING PHOTOGRAPHIC PLATES FOR INDIRECT TRICOLOR PHOTOGRAPHY

Filed July 25, 1921

2 Sheets-Sheet 2



Inventor:

E. A. Lage

Wm. J. ... atty

UNITED STATES PATENT OFFICE.

ERNST AUGUST LAGE, OF HAMBURG, GERMANY.

METHOD OF PRODUCING PHOTOGRAPHIC PLATES FOR INDIRECT TRICOLOR PHOTOGRAPHY.

Application filed July 25, 1921. Serial No. 487,526.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, ERNST AUGUST LAGE, a citizen of the German Republic, residing at Hamburg, Germany, have invented certain new and useful Improvements in Methods of Producing Photographic Plates for Indirect Tricolor Photography (for which I have filed applications in Germany, Feb. 7, 1914; Great Britain, Mar. 19, 1921; France, Mar. 11, 1921; Switzerland, Mar. 14, 1921; Belgium, May 4, 1921; Netherlands, Mar. 8, 1921), of which the following is a specification.

It has been proposed to produce part negatives for indirect tri-color photography by superposing three layers. The present invention differs from the known method by the fact that three halogen silver emulsion layers sensitized for the three different spectral divisions, are superposed directly upon each other, and pressed into intimate contact to secure the layers together. The several layers are thus caused to lie upon one another without any intervening space, and owing to this direct contact the inaccuracy or lack of sharpness otherwise due to the dispersion and refraction of the light rays in intermediate air spaces, are avoided. By the improved method plates may be prepared which may be used like ordinary plates for any kind of apparatus or camera, even without the necessity of compensation of focal difference. It is possible by this invention to produce the three part images in a satisfactory manner by a single short exposure of the plate.

It is immaterial upon what supports the layers are placed. It is preferred to prepare one emulsion upon glass, whilst the other two emulsions are applied to very thin films. The films may consist of celluloid, collodion, coloured gelatine, mica, or any other suitable transparent or translucent body.

In the accompanying drawing:

Fig. 1 is a sectional view through a plate with the layers in position thereon.

Fig. 1^a is a view similar to Fig. 1, showing the use of filter layers.

Fig. 2 is a view showing some of the layers partly separated.

Fig. 3 is an elevation, and

Fig. 4 is a side view of the means for pressing the films together.

In carrying out the improved method the thin films are placed upon the lower silver bromide plate, the intimate contact between the plates being produced by forcing the layers into intimate contact. A suitable mode of working is the following:— The films are made somewhat larger than the glass plate *a*; the emulsion side of the plate is wetted at the edge all round. The first film *b* is then placed upon the plate with the emulsion side upwards, and the film together with the plate are then pressed against one another by one or more spring actuated or yielding rubber rollers or the like which express the air between the layers which are to be brought together. The rollers *f*, *f'*, are movably and rotatably mounted in the standards *e*, *e'*, through blocks *g*, *g'*, springs *h* being provided to normally force the rollers apart, and screws *i* providing an adjustment for obtaining the necessary pressure of the rollers on the films *a* passing therethrough, and being forced into intimate contact. A handle *k* mounted on one of the extended ends of the lower roller shaft provides the means for rotating the rollers and feeding the films that are pressed together through the machine. The second and third films *b* and *c* are then superposed in the same manner, whereupon the plate is ready for taking.

The lower emulsion film *b* which may be carried by the glass *a*, is a highly sensitive silver bromid emulsion sensitized for red rays; upon it lies a film *c* sensitized for yellow, green and blue rays, whilst the uppermost film *d* is sensitive to blue only. The filter layers such as *c'* and *d'* should any be required are placed upon the rear sides of the respective emulsion carriers as *c* and *d*, preferably in the form of easily washed out color layers of gelatine or the like.

In order to develop the plate it is sufficient to make a slight incision upon the layer side along the edge. The several films then easily separate, and may be developed and treated in the usual manner.

As compared with multi-layer photographic plates in which two or more sensitive layers are cast upon a common support,

a plate made according to the present method is characterized by the fact that the layers are prepared separately and superposed upon each other and pressed into intimate contact. Such a method is considered to be much safer, to involve less waste, and to be more suitable for production on a large scale. It also has the advantage that the further treatment and development of the individual part views can be carried out by the consumer in a very simple and convenient manner.

I claim:—

1. A method of producing plates for indirect tri-color photography consisting in preparing separately three halogen silver emulsion layers sensitized for the different spectral divisions, and superposing the layers directly upon each other and forcing said layers into such intimate contact as to exclude the air between them.

2. A method of producing plates for indirect tri-color photography consisting in preparing separately three halogen silver emulsion layers sensitized for the different spectral divisions, superposing the layers directly upon each other, and in joining the

layers by the pressure of spring-actuated rollers for forcing the layers into intimate contact.

3. A method of producing plates for indirect tri-color photography consisting in preparing separately three halogen silver emulsion layers sensitized for the different spectral divisions, superposing the layers directly upon each other and in joining the layers by the pressure of yielding rollers to force the layers into intimate contact.

4. A method of producing plates for indirect tri-color photography consisting in preparing separately three halogen silver emulsion layers sensitized for the different spectral divisions, in applying the light filters to the rear side of the emulsion carriers and in superposing the layers directly upon each other and forcing them into intimate contact by pressure.

In testimony whereof I affix my signature in presence of two witnesses.

ERNST AUGUST LAGE.

Witnesses:

FRIEDRICH JULIUS GOILBS,
I. CHRIST STEFFERMANN.