

N^o 28,920



A.D. 1897

Date of Application, 7th Dec., 1897

Complete Specification Lett, 51st Aug., 1898—Accepted, 5th Nov., 1898

PROVISIONAL SPECIFICATION.

Improvements in the Production of Coloured Photographs and Apparatus for that purpose.

I, JOHN WALLACE BENNETTO, of The Studio, Newquay, in the County of Cornwall, Photographer, do hereby declare the nature of this invention to be as follows:—

5 Coloured photographs have been produced by taking three negatives of a coloured object employing three screens of suitably coloured glass, and then taking positives from these negatives on coloured films which being superposed produce a coloured picture. My invention relates to a method for taking the negatives by a special apparatus and to a method of taking and superposing the positives, the chief objects which I have in view being to simplify the operations and to secure accuracy and uniformity of the products.

10 The apparatus which I employ for taking the negatives is a camera with a dark slide at the end of the chamber and another slide on the top or side of the chamber, a suitably coloured glass plate being placed at such an angle that rays from the lens pass through the plate to a sensitive plate or film in the end slide and rays also are reflected so as to pass to a pair of sensitive plates or films in the other slide. The coloured glass constitutes a screen of one colour for the end plate or film and coloured films or glasses constitute coloured screens for the other two plates or films which should have their sensitised sides next each other so that both are in the focal plane.

15 By this camera the three negatives are taken at once under the same conditions as to light, focussing and exposure, and they are developed and fixed in the usual way. As one of them is taken by direct rays, it is inverted relatively to the other two taken by the reflected rays.

20 In order to produce the positives, I proceed as follows;—I first prepare three pigments, a red such as scarlet vermillion, a blue such as cobalt, and a yellow such as chrome yellow, grinding them very fine and mixing them with gelatine or other vehicle such as is employed in the preparation of what is commonly known as carbon tissue. I coat a web of paper of suitable width with the three pigments in parallel bands, each band of about the same width as the picture is to be. Having sensitised the tricolor web with bichromate of potash I cut off a length about equal to the height of the intended picture and I fix this in a printing frame with the three negatives each on its appropriate coloured band, that is to say the negative affected mostly by the red rays on the blue band, and the negative affected mostly by green on the red band, and the negative affected mostly by blue on the yellow band. After sufficient exposure, the tricolor paper is placed in cold water and mounted in contact with a thin transparent flexible strip which may be of prepared gelatine, celluloid or the like, and the positives are developed in warm or hot water as is done in the process of carbon printing. When the positives are dry, they are preferably coated with adhesive cement and the three are folded together the two side positives on the middle one in correct register, and subjected to pressure till the cement is set.

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Impts. in the Production of Coloured Photographs & Apparatus for that purpose.

Although I have described the production of the three positives on a piece of the tricolor paper and the folding them together as a simple and rapid method of operating, the coloured picture may be produced in the following manner. Two of the positives are transferred to and developed on a glass plate, the third being developed on a thin film. The glass plate is then cut in two and the two positives are put together face to face with the film between them. The whole is subjected to pressure and has its edges bound with adhesive paper or fabric.

Dated this 7th day of December 1897.

ABEL & IMRAY,
Agents for the Applicant. 10

COMPLETE SPECIFICATION.

Improvements in the Production of Coloured Photographs and Apparatus for that purpose.

I, JOHN WALLACE BENNETTO, formerly of The Studio, Newquay, in the County of Cornwall, but now of Yeomans Row Studios, Brompton Road, in the County of London, Photographer, 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:—

Coloured photographs have been produced by taking three negatives of a coloured object employing three screens of suitably coloured glass, and then taking positives from these negatives on coloured films which being superposed produce a coloured picture.

My invention relates to a method for taking the negatives by a special apparatus and to a method of taking and superposing the positives, the chief objects which I have in view being to simplify the operations and to secure accuracy and uniformity of the products.

The apparatus which I employ for taking these negatives is represented in the accompanying drawings.

Figure 1 is an external perspective view of the camera.

Figure 2 is a longitudinal section partly in elevation of it, in condition for taking the three negatives and Figure 3 is a longitudinal section partly in elevation of the camera in condition for ordinary use.

The camera is made with an opening at the top provided with a cover A and it has hinged at its upper rear angle a frame in which is fixed a red glass B. When the camera is employed for taking photographs in the usual way the glass B is held up by a spring catch *b* as shewn in Figure 3; but when the camera is to be employed for taking three negatives, the glass B is let down to rest on a stop C where it is held by a spring catch *c*, the plane of the glass being then inclined at 45° to the axis of the camera. The focussing door D, and the cover A of the camera being opened, a pair of dark slides, E and F which are hinged together are placed as shewn in Figures 1 and 2 the one E occupying the place of the focussing slide, D, and the other F taking the place of the cover A. In the slide E is held an isochromatic sensitised glass or film, specially sensitive to red rays, and in F two glasses or films are held their sensitised faces to each other the lower having a transparent chloro bromide film so as to be specially sensitive to blue rays, and the upper one an isochromatic plate or film specially sensitive to green rays. When a photograph is taken some of the rays from the objective O pass through the red glass B and act on the film or glass in the slide E, and some of the rays are reflected upwards from the glass B, and act on both the films or glasses in F the lower of the two being acted on mostly by the blue rays, while the upper is acted on mostly by the green rays. The two plates or

Inpts. in the Production of Coloured Photographs & Apparatus for that purpose.

films in F may have a thin greenish yellow film interposed between them this film acting as a screen for the upper plate or film.

In this manner I obtain three negatives all taken at the same time under the same external conditions and differing only in that one of them is acted on
5 mostly by red rays and the other two are acted on mostly by blue and green rays respectively. As the upper pair of negatives in F are produced by reflected rays they would necessarily be inverted relatively to that in E produced by the direct rays but as one of these is placed in the slide facing the other it is inverted relatively to it.

10 In order to produce the positives I proceed as follows. I first prepare three pigments a red such as scarlet or vermillion, a blue such as cobalt, and a yellow such as chrome yellow, grinding them very fine and mixing them with gelatine or other vehicle such as is employed in the preparation of what is commonly known as carbon tissue. I coat bands of paper of suitable width with the three
15 pigments.

Having sensitised these bands with bichromate of potash I cut off lengths each about equal to the height of the intended picture and I place these in a printing frame with the three negatives each on its appropriate coloured band, that is to say the negative affected by the red rays on the blue band, the negative affected
20 by green on the red band, and the negative affected by blue on the yellow band. After sufficient exposure, the papers are placed in cold water and mounted in contact with a thin transparent flexible strip or film which may be of prepared gelatine, celluloid or the like, and the positives are developed in warm or hot water the paper being stripped off and the positives being left on the film as in
25 the known process of carbon printing. When the positives are dry, they are preferably coated with adhesive cement and the three are placed together the two side positives of the one band are on each side of that of the other band in correct register and subjected to pressure till the cement is set.

Or two of the positives one being inverted relatively to the other one are
30 transferred to and developed on glass plates the third being developed on a thin film. The two glass plates are put together with the positives on them face to face and the film positive between them. The whole is subjected to pressure and has its edges bound with adhesive paper or fabric.

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

1. A photographic camera, having a pair of dark slides situated the one at the end, the other on the top, and an inclined red glass the slides and glass being so situated that some of the rays of light from the objective can pass through
40 the red glass and act on a sensitised film or plate in the slide at the end, and that some of the rays can be reflected so as to act on two sensitised films or plates in the top slide, substantially as and for the purpose set forth.

2. The herein described process for producing coloured photographs consisting of the following steps of operation—first simultaneously taking three negatives,
45 one resulting from rays passed through a red glass, the other two resulting from rays reflected from the glass, and one of the two being affected as if by blue rays—the other as if by green rays—secondly, photographically printing positives from these negatives on differently coloured bands of sensitised film forming a coating on paper—thirdly separating the films from the paper and developing the posi-
50 tives and finally superposing the three films on one another.

Dated this 31st day of August 1898.

ABEL & IMRAY,
Agents for the Applicant.

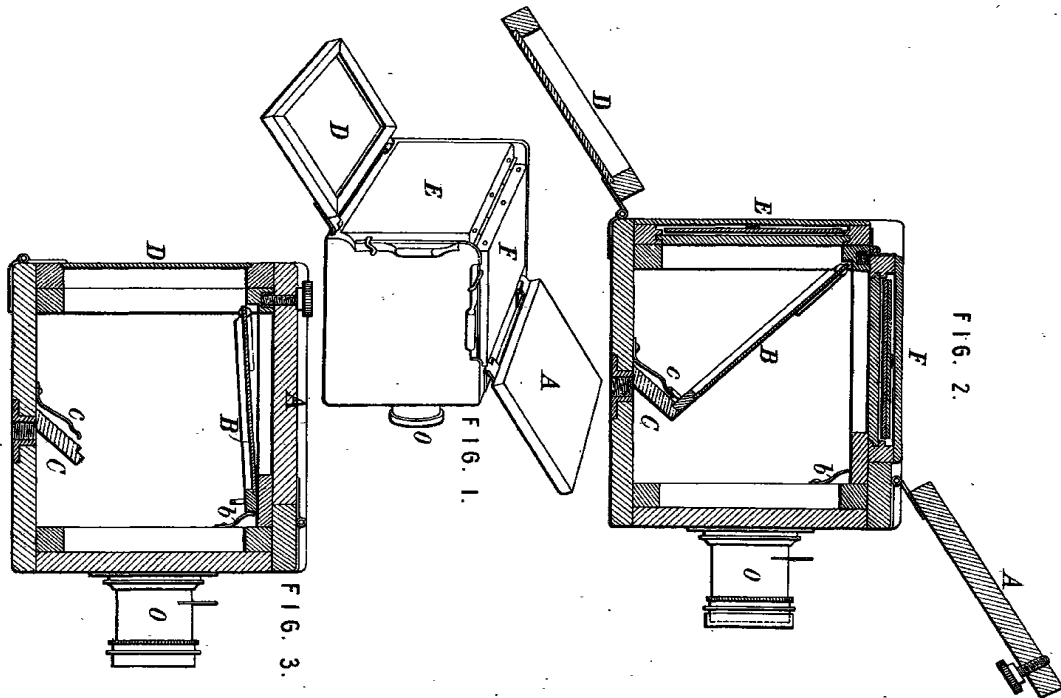


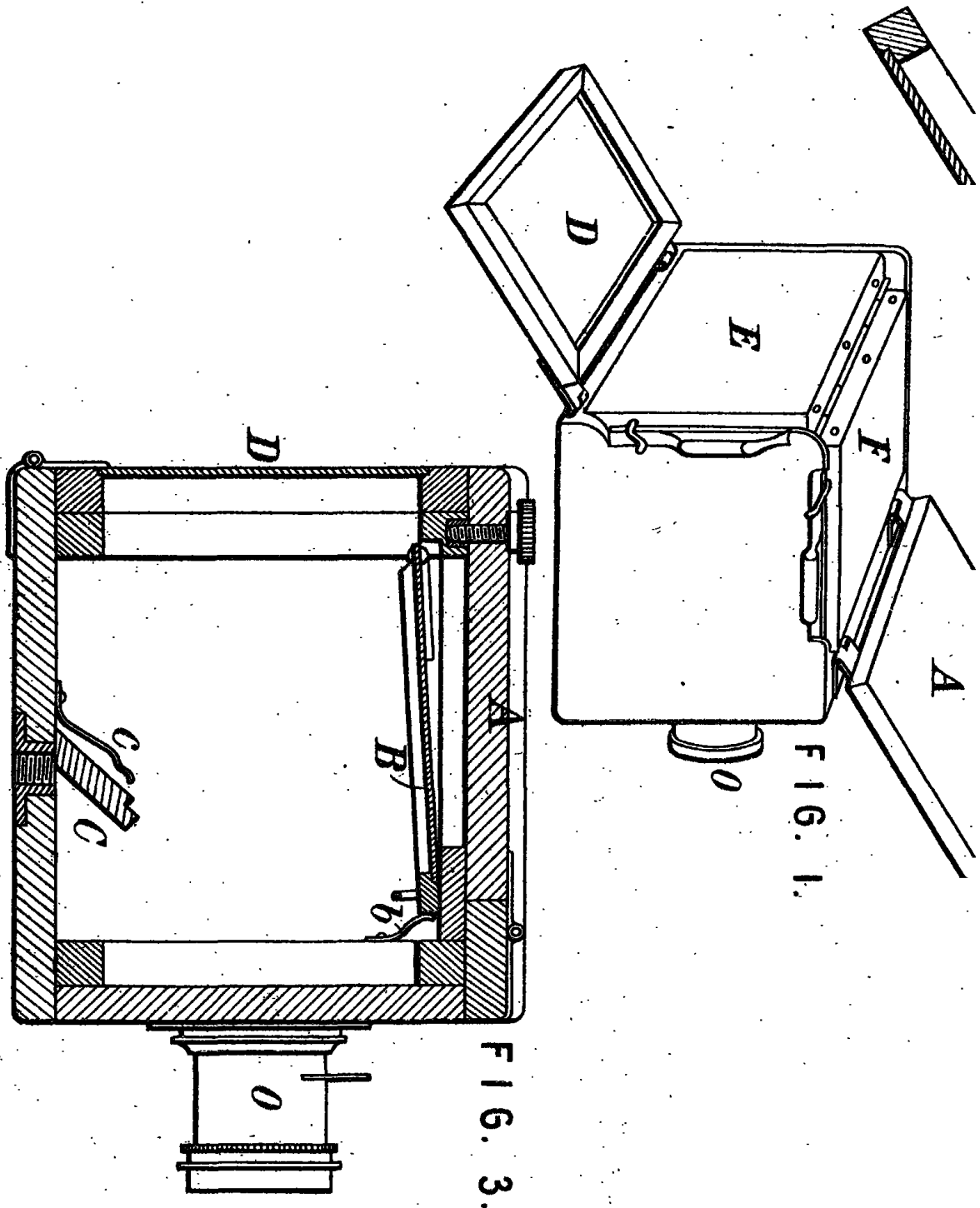
FIG. 2.

FIG. 1.

FIG. 3.

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

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

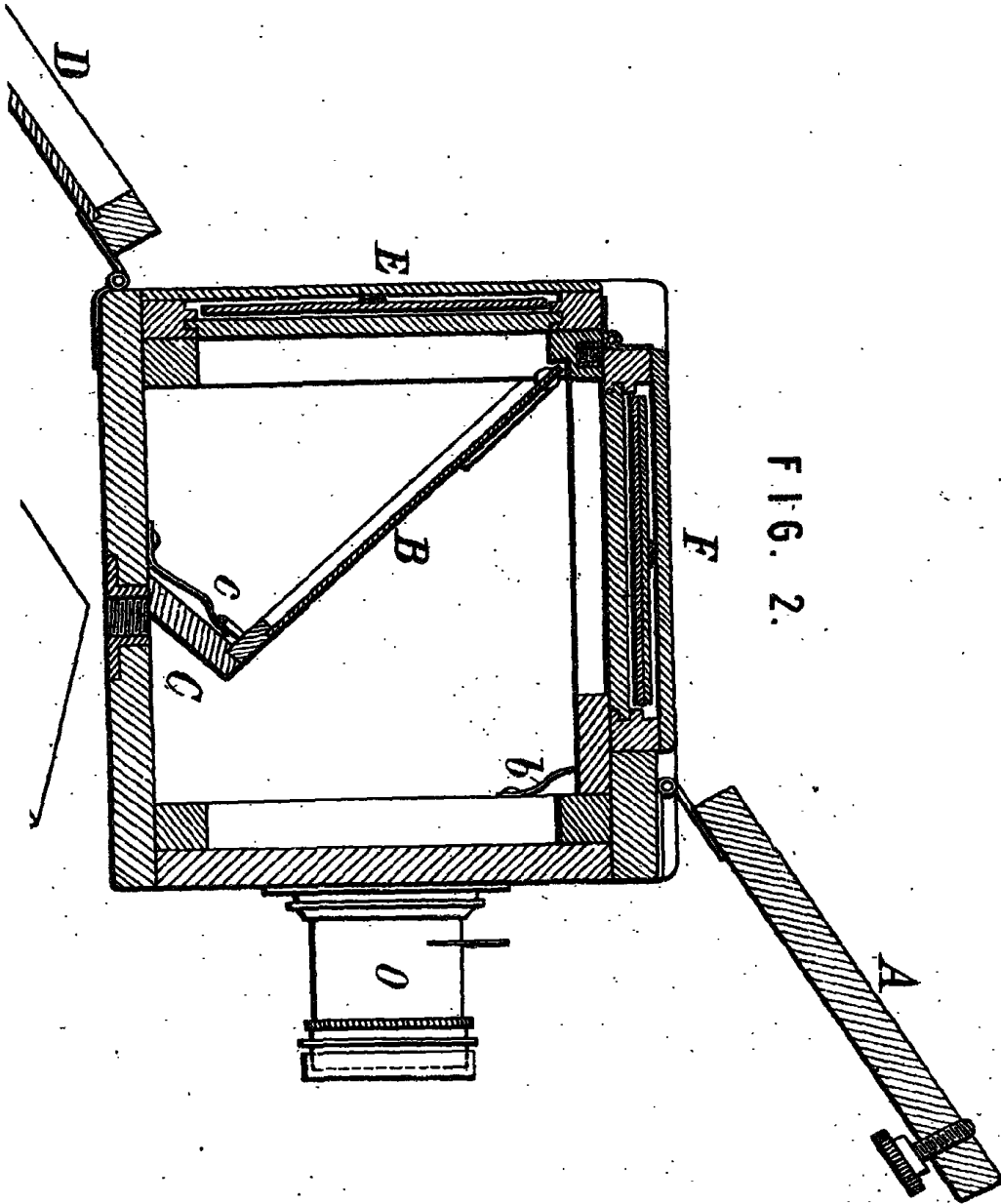


FIG. 2.

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N^o 28,920^A



A.D. 1897

Date of Application, 7th Dec., 1897

Complete Specification Left, 31st Aug., 1898—Accepted, 26th Nov., 1898

PROVISIONAL SPECIFICATION.

A Paper with Films for Producing Coloured Photographs.

I, JOHN WALLACE BENNETTO, Photographer, The Studio, Newquay, Cornwall, do hereby declare the nature of this invention to be as follows;—

In my Application No. 28920, on 7th December 1897, I describe a construction of camera whereby three negatives are simultaneously taken, one acted on mostly
5 by red rays, one acted on mostly by blue rays and one acted on mostly by green rays, the two latter being obtained by reflection so that they would be both inverted relatively to the former one, but that one of them being placed facing the other is inverted relatively to it.

10 In order to produce positives from negatives obtained as above described, I proceed as follows:—I first prepare three pigments, a red such as scarlet vermilion, a blue such as cobalt, and a yellow such as chrome yellow, grinding them very fine and mixing them with gelatine or other vehicle such as is employed in the preparation of what is commonly known as carbon tissue. I coat a web
15 of paper of suitable width with the three pigments in parallel bands, each band of about the same width as the picture is to be.

Having sensitised the tricolor web with bichromate of potash I cut off a length about equal to the height of the intended picture, and I fix this in a printing frame with the three negatives each on its appropriate coloured band, that is to say, the negative affected mostly by the red rays on the blue band,
20 and the negative affected mostly by green on the red band, and the negative affected mostly by blue on the yellow band. After sufficient exposure, the tricolor paper is placed in cold water and mounted in contact with a thin transparent flexible strip which may be of prepared gelatine, celluloid or the like, and the positives are developed in warm or hot water as is done in the process of carbon
25 printing.

When the positives are dry, they are preferably coated with adhesive cement and the three are folded together the two side positives on the middle one in correct register, and subjected to pressure till the cement is set.

Dated this 7th day of December 1898.

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ABEL & IMRAY,
Agents for the Applicant.

COMPLETE SPECIFICATION.

A Paper with Films for Producing Coloured Photographs.

I, JOHN WALLACE BENNETTO, Photographer, The Studio, Newquay, Cornwall,
35 do hereby declare the nature of this invention and in what manner the same
[Price 8d.]

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Bennetto's Paper with Films for Producing Coloured Photographs.

is to be performed. to be particularly described and ascertained in and by the following statement:—

In my Application No. 28920, 7th December 1897 I describe a construction of camera whereby three negatives are simultaneously taken, one acted on mostly by red rays, one acted on mostly by blue rays and one acted on mostly by green rays, the two latter being obtained by reflection so that they would be both inverted relatively to the former one, but that one of them being placed facing the other is inverted relatively to it. 5

I prepare three pigments, a red such as scarlet vermillion, a blue such as cobalt, and a yellow such as chrome yellow, grinding them very fine and mixing them with gelatine or other vehicle such as is employed in the preparation of what is commonly known as carbon tissue. I coat a web of paper of suitable width with these pigments in parallel bands each band about the same width as the intended picture. Having sensitised these bands with bichromate of potash, I cut off a length of the tricolour web about equal to the height of the intended picture, and I place this length of web in a photographic printing frame laying the three negatives each on its appropriate colour, that is to say the negative affected mostly by red rays on the blue band, that mostly affected by green on the red band, and that mostly affected by blue on the yellow band. 10 15

After sufficient exposure, the tricolour band is placed in cold water and mounted in contact with a flexible transparent strip or film which may be of prepared gelatine, celluloid or the like, and the positives are developed in warm or hot water, the paper or original celluloid being stripped off and the positives being left on the the film as in the known process of carbon printing. 20

When the positives are dry they are coated with colourless adhesive cement and then the three are folded together, the red being in the middle and the blue and yellow being folded over its opposite sides in correct register and the whole is subjected to pressure till the cement is set. 25

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is:— 30

A web of paper having on it three parallel bands of differently coloured film adapted for producing photographic positives, prepared and treated, substantially as described.

Dated this 31st day of August 1898.

ABEL & IMRAY,
Agents for the Applicant.