

P. D. BREWSTER.
PHOTOGRAPHIC FILM.
APPLICATION FILED JULY 1, 1913.

1,145,968.

Patented July 13, 1915.

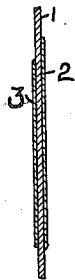


FIG-1-

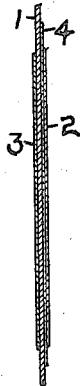


FIG-2-

Percy D. Brewster

INVENTOR

WITNESSES:

Cornelius O'Donoghue
A. S. Brewster

UNITED STATES PATENT OFFICE.

PERCY D. BREWSTER, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO BREWSTER FILM CORPORATION, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW YORK.

PHOTOGRAPHIC FILM.

1,145,968.

Specification of Letters Patent. Patented July 13, 1915.

Application filed July 1, 1913. Serial No. 776,782.

To all whom it may concern:

Be it known that I, PERCY D. BREWSTER, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Photographic Films, of which the following is a specification.

My invention relates to photographic films adapted for use in color photography and specially in color motion picture photography and has for its object the production of a film adapted to be acted upon one side by light of one group of colors and on the other side by the light of other colors according to the process described in my patent application Ser. No. 747,712, filed Feb. 11, 1913, entitled "Color photography."

Figure 1 in the sheet of drawings is a section through the film; Fig. 2 is a section through a modified film.

The film, Fig. 1, consists of a support 1, made of material such as celluloid, coated on one side with an emulsion 2 made as transparent as possible and sensitive chiefly to light of one group of colors having wave lengths from about 4000 u. u. to 5500 or 6000 u. u. including from violet to green or yellow-green or even yellow. This emulsion may contain chiefly silver chlorid or may be a silver bromid and silver iodid emulsion that has not entirely "ripened" and is a yellow color that will permit the red and orange light to pass with minimum loss. The emulsion is colored or stained before or after coating a yellow or orange color adapted to prevent the passage of material amounts of blue or green light through the emulsion. Instead of staining the emulsion the support 1, Fig. 2, may be stained or may be coated with a layer 4 of a stained substance such as gelatin. The emulsion may be color sensitive when coated or it may be rendered sensitive to blue and green by treating with dyes such as acridin orange NO, eosin, erythrosin or a mixture of them. Some of these dyes, being yellow or orange, may stain the emulsion sufficiently to prevent the passage of the blue and green light. The other side of the film may be coated with a panchromatic emulsion 3 or with an emulsion sensitive to red, orange and yellow light or the emulsion may be treated on the film after coating with dyes such as

pinacyanol, pinachrome, dicyanin or a mixture of them to sensitize for these colors. As described in my other application the film is exposed in a camera with the "green" sensitive emulsion nearer the lens. A light filter may be used to shut out the ultra-violet light and possibly reduce the action of the violet, indigo and blue light on the film. After exposure the film is developed and fixed on both sides and the images on both sides of the film are stained different colors. The color negative film is printed on a similarly prepared positive film. It is not essential that the emulsion on this positive film be so transparent as a light of great intensity in orange and red may be used in printing to overcome the density of the side of the film sensitized for green. The positive film is developed and fixed on both sides and the images on both sides are stained in colors best adapted to reproduce the object photographed, the image on one side being usually stained a blue or green and the image on the other side a red or orange or possibly a yellow. Prints may be made from color negatives made by other processes or from color paintings or prints on this film. A modification of this film may be secured by treating the emulsion on the side of the film to be exposed nearer the camera lens with a dye such as dicyanin, which while sensitizing the emulsion for red and orange causes it to be relatively non-sensitive or "blind" to green and blue between 4750 u. u. and 5400 u. u. while the other side or back of the film is sensitized for blue and green. By using a light filter adapted to shut off the ultra-violet, violet, indigo and the extreme blue, a color film may be made that will render or record the principal colors in nature.

To facilitate staining the two sides of the film in different colors, either side may be treated with a "resist" to render it immune to action of certain dyes such as either acid or basic dyes. The film may be so treated by making the emulsion coated on one side adapted to absorb color from a certain class of dyes and the emulsion coated on the other side from a different class of dyes, in which case both sides of the film may be immersed in both dye baths without the colors mixing.

Having described my invention what I

claim and desire to secure by Letters Patent, is,—

1. As a new article of manufacture, a photographic film comprising a transparent support coated on one side with an emulsion sensitized chiefly to light of one group of colors and coated on the other side with an emulsion sensitized chiefly for other colors.

2. As a new article of manufacture, a photographic film comprising a transparent support coated on one side with an emulsion made as transparent as possible and sensitized chiefly to light of one group of colors and coated on the other side with an emulsion sensitized chiefly for other colors.

3. As a new article of manufacture, a photographic film comprising a transparent support coated on one side with an emulsion sensitized chiefly to light of one group of colors, the said emulsion being stained to prevent the passage through it of material quantities of light of the said group of colors, and an emulsion coated on the other side of the said support sensitized chiefly for light of other colors.

4. As a new article of manufacture, a photographic film comprising a transparent support coated on one side with an emulsion made as transparent as possible and sensitized chiefly for one group of colors, means adapted to prevent the passage through the said support of material quantities of light of the said group of colors, and an emulsion coated on the other side of the said support sensitized chiefly for light of other colors.

5. As a new article of manufacture, a photographic film comprising a transparent support coated on one side with an emulsion sensitized chiefly for green, blue, indigo and violet light and coated on the other side

with an emulsion sensitized for red, orange and yellow light.

6. As a new article of manufacture a photographic film comprising a transparent support coated on one side with an emulsion made as transparent as possible and sensitized chiefly for yellow-green, green, blue, indigo and violet light and coated on the other side with an emulsion sensitized for red, orange and yellow light.

7. As a new article of manufacture a photographic film comprising a transparent support coated on one side with an emulsion sensitized chiefly for yellow-green, green, blue, indigo and violet light and stained a yellowish color to prevent the passage of material quantities, of green, blue, indigo and violet light through the said emulsion, and an emulsion coated on the other side of the said support sensitized for red, orange and yellow light.

8. As a new article of manufacture a photographic film comprising a transparent support coated on one side with an emulsion made as transparent as possible and sensitized chiefly for yellow-green, green, blue, indigo and violet light, means adapted to prevent the passage through the said support of material quantities of green, blue, indigo and violet light, and an emulsion coated on the other side of the said support sensitized for red, orange and yellow light.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this twenty eighth day of June 1913.

PERCY D. BREWSTER.

Witnesses:

CORNELIUS O'DONOGHUE,
A. S. BREWSTER.