

F. A. FIFIELD.
 SCREEN OR FILM SUPPORT FOR USE IN PHOTOGRAPHY.
 APPLICATION FILED MAY 16, 1904.

990,247.

Patented Apr. 25, 1911.

Fig. 1.

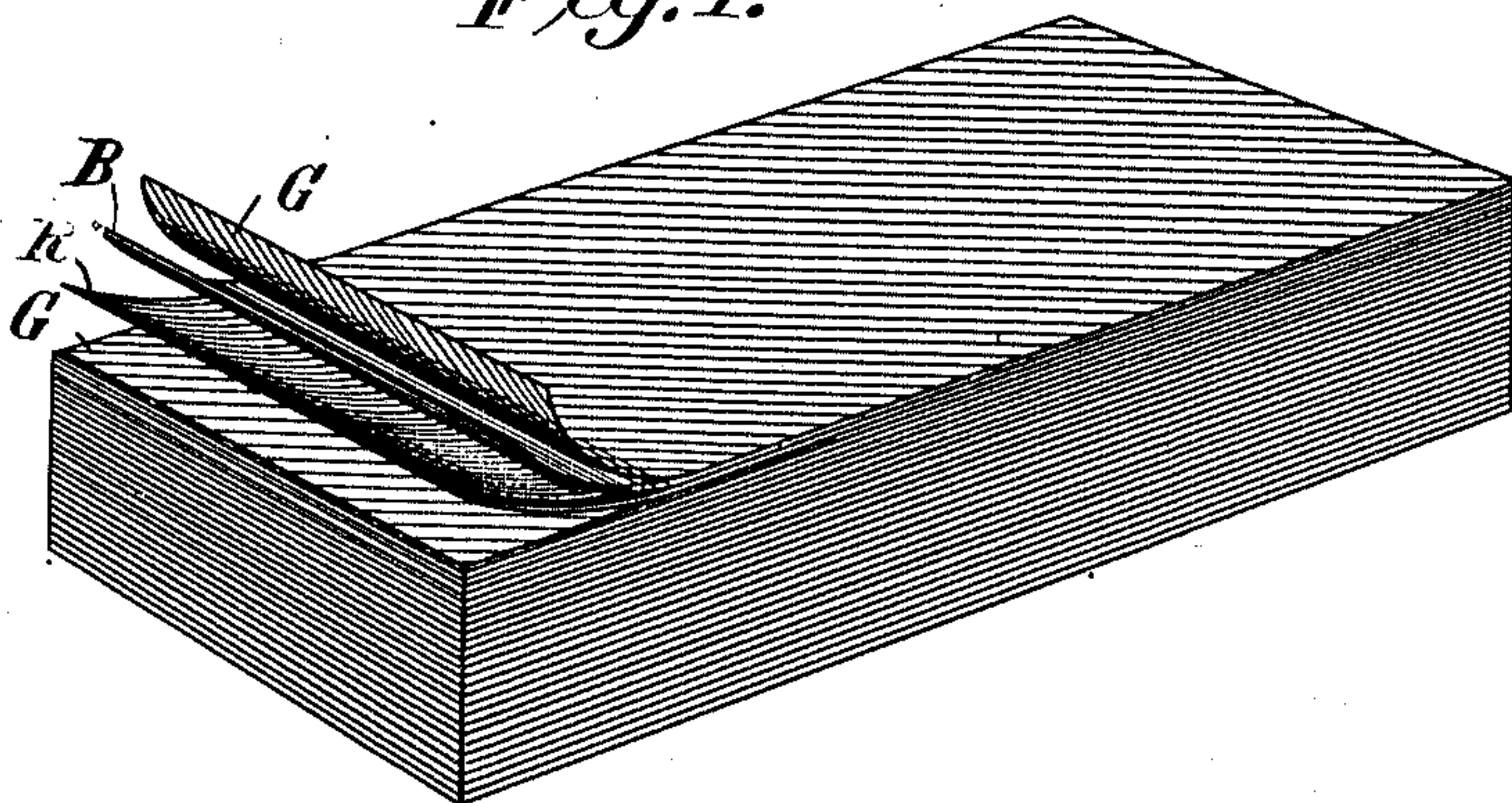


Fig. 2.

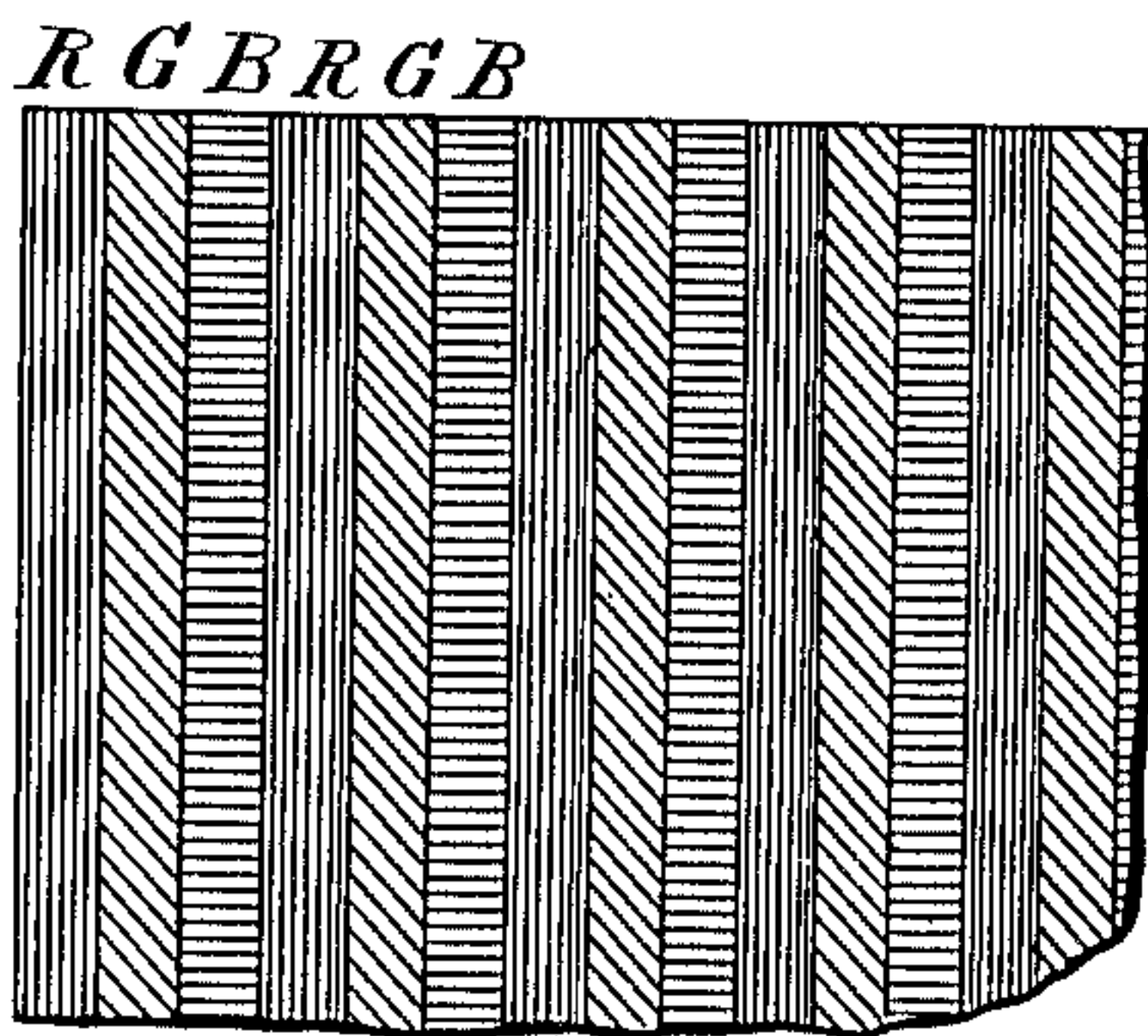


Fig. 3.

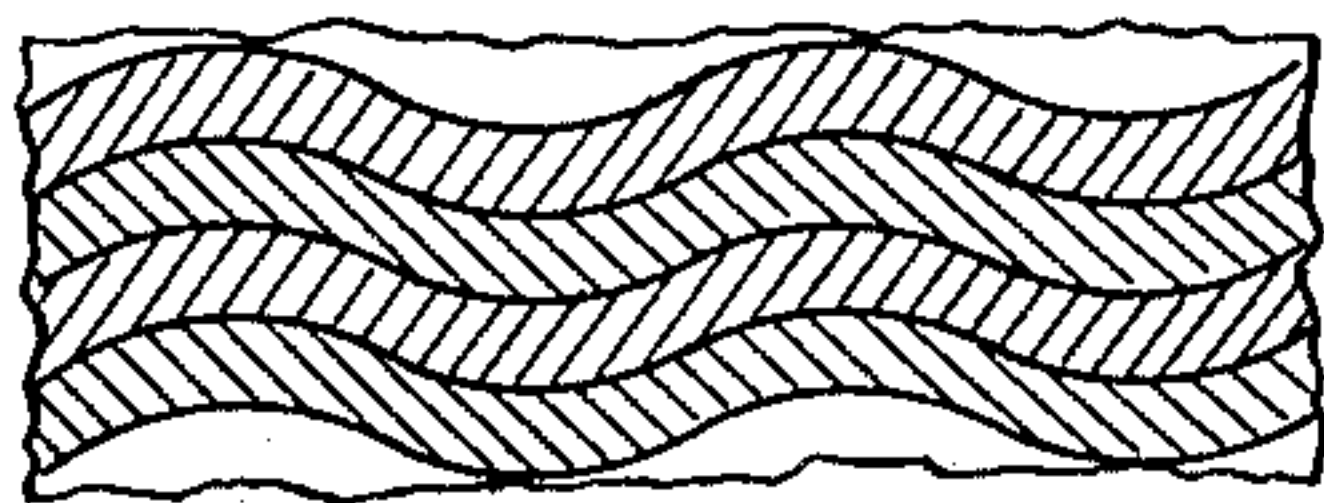


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

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SCREEN OR FILM-SUPPORT FOR USE IN PHOTOGRAPHY.

990,247.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed May 16, 1904. Serial No. 208,075.

To all whom it may concern:

Be it known that I, FREDERIC A. FIFIELD, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Screens or Film-Supports for Use in Photography; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to color photography and has for its object to provide an improved color screen, which may also be used as a support for the sensitized coating or emulsion and employed in the photographic process known as the Powrie process of color photography, and consists generally of a screen or support composed of a plurality of narrow or small strips or sections of homogeneously and appropriately colored more or less transparent or translucent media such as gelatin or preferably a nitro-cellulose compound, the adjacent edges of said strips or sections being firmly attached, and the whole forming in effect an integral structure.

The color screens used in what is known as the Macdonough process of color photography, have generally been formed by ruling upon the surface of glass or other transparent material, a series of fine lines, three hundred or more to the inch, which lines are filled with appropriate coloring matter in the same sequence throughout the extent of the plate, as, for instance, in a series of three colors, red, green and blue, but the expense of making such plates, or screens is very great owing to the delicate machinery required for the purpose. And the expense involved in ruling plates where each is coated with emulsion or sensitized material, is so great as to be practically prohibitive for commercial purposes. Under these circumstances, it will be understood that a screen and plate or support for the sensitive coating which contains the lines in its body, and is, in its preferred form, flexible, and may be used as ordinary film is used, is greatly to be desired, and such a device is produced by my invention.

In carrying out the invention I provide a quantity of very thin sheets, say from one

to three one-thousandths of an inch in thickness, of suitable translucent, and preferably flexible material, such as nitro-cellulose compound, which is preferred on account of its non-hygroscopic qualities, said sheets being homogeneously colored by incorporating therein suitable dyes or coloring matter capable of use in color photography, as for instance, some of these sheets may be colored or stained red; others, green and still others blue. These sheets are then superposed in the proper order in which the colors are to appear in the completed screen, or film support, as for instance, first a red sheet, then a green sheet and then a blue sheet; then red, green and blue sheets in the order named, until the pile equals in thickness the length or width of the complete screen. The colored sheets of material are formed into a solid mass by being pressed firmly together and subjected to heat, if the sheets are of nitro-cellulose material, and are preferably secured and rendered incapable of separation, by a suitable cement applied between them, when being superposed, which may be formed by a transparent nitro-cellulose compound, dissolved in any of the well known nitro-cellulose solvents. After the sheets have been consolidated into a mass by heat and pressure, or otherwise, the sheets forming the color screen, or film support, are formed by shaving off or cutting thin layers from the end of the block and transversely of the planes of the color sheets, the resulting product being a flexible screen or film support composed of alternating lines or strips or sections of colored transparent or translucent material which is capable of use either in a camera in the well known Macdonough process, or as a screen for viewing photographs made by the Macdonough process, or as a support for the reception of a photographic sensitized coating and capable of use in the Powrie process.

While I prefer to form the screens or film support of nitro-cellulose compound, as stated, by reason of its non-hygroscopic qualities, and comparative ease of manipulation and manufacture, it will be understood that sheets of other materials having these characteristics could be employed, which are capable of holding the appropriate colors, of being consolidated into a mass and of being subsequently separated into thin sheets by

cuts extending transversely of the planes of said sheets.

In the accompanying drawings: Figure 1 is a perspective view of a block of superposed sheets of transparent or translucent nitro-cellulose material from which the screens or supports are to be cut, the upper sheets being turned back at one end to show the manner of making, and Fig. 2 is a view of a portion of a screen or film support greatly magnified and showing the lines of differently colored transparent media, R indicating the red portions or lines, B the blue and G the green lines thereof. Figs. 3 and 4 are views of portions of modified forms of screens.

It will be understood that instead of having the superposed sheets from which the screen is formed extend in horizontal planes, they might be formed by pressure between irregular supports or bases so that the lines in the screen will appear waved or zigzag as in Fig. 3, if desired, but I prefer that the lines be straight and parallel, as this enables a more exact register to be obtained, if registration of two superposed screens or films is desired, as it necessitates adjustment in one direction only.

Instead of employing differently colored sheets of nitro-cellulose material a mass of threads or filaments of differently colored nitro-cellulose or other material could be consolidated by heat and pressure or otherwise to form a block and then the screens or film supports could be formed by cutting the sheets from the ends of the block or transversely of the threads as in Fig. 4, this procedure forming a plurality of translucent differently colored spots or dots which

would permit the passage through it of the proper colors only.

It will be understood that by alternately superposing and consolidating thin sheets of transparent and of black nitro-cellulose compound in the manner described, and then severing the sheets from the end of the block thus formed, screens containing alternate opaque and transparent lines may be formed which could be used in photographic plate printing or for microscopic work, and by this means the number of lines to the inch is only limited by the thinness or attenuation of the sheets themselves.

In both the form of the invention last described and the one first described it will be noted, the sections offer relatively greater and less resistance to the passage of light.

I claim as my invention:

1. A screen or support for use in color photography consisting of a plurality of differently colored translucent strips of cellulose material connected at their adjacent edges.

2. A flexible screen or support for use in color photography consisting of a plurality of translucent differently colored strips of cellulose material connected together at their adjacent edges.

3. A flexible screen or support for use in color photography consisting of a plurality of series of differently colored strips of cellulose cemented together at their adjacent edges and arranged in recurrent series.

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Witnesses:

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