Nov. 2, 1926. 1,605,699

F. A. BOURGES

COLOR VALUE POSITIVE AND METHOD OF MAKING THE SAME

Filed Nov. 6, 1925

Fig. 1.

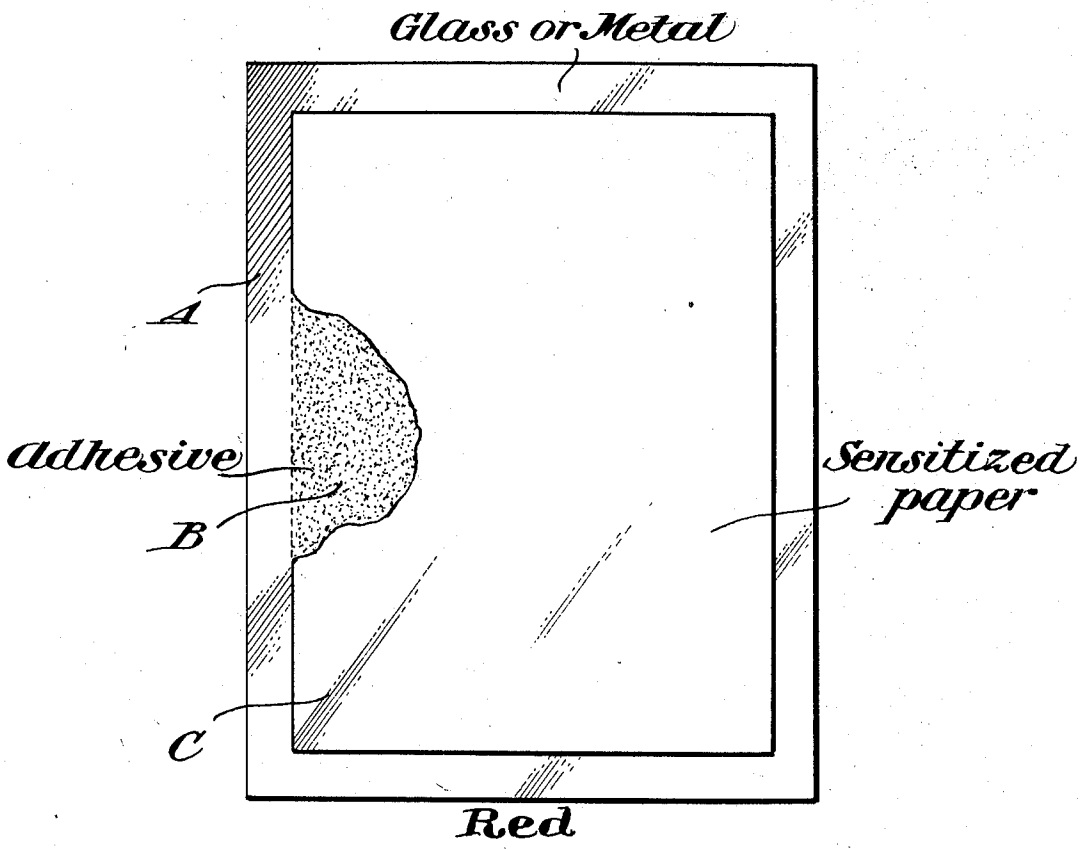


Fig. 2.

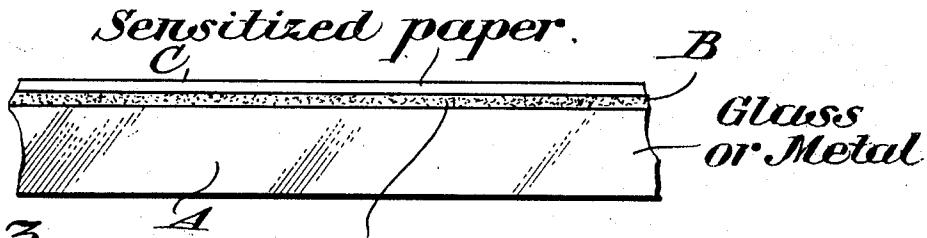


Fig. 3.

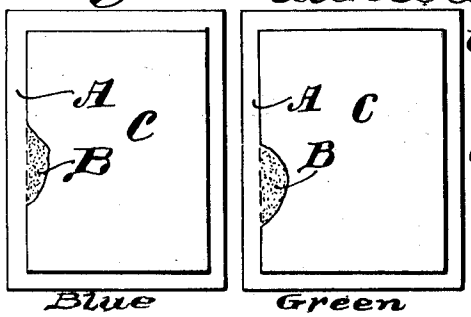


Fig. 4.

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UNITED STATES PATENT OFFICE.

FERNAND A. BOURGES, OF NEW YORK, N. Y.

COLOR-VALUE POSITIVE AND METHOD OF MAKING THE SAME.

Application filed November 6, 1925. Serial No. 67,381.

My invention relates to the art of making photographic prints from negatives.

The chief object of the invention is to facilitate the making of positives from photographic color separation negatives for use by photo-engravers, lithographers and color-process workers.

Such positives are made from separation negatives which are produced by the well-known two- three- and four-color method, making a separate negative for each color—red, yellow, blue and black. From each separation negative a positive is made by printing through the negative.

It is essential that these positive prints be exact duplicates, in order that there may be accurate registering when the colors are superposed in the final picture.

For ordinary photographic printing, light exposure is made through the negative on the sensitized surface of a sheet of paper. Then that paper sheet is placed in a water solution of developer according to directions given by the manufacturer of the paper or according to what the photographer has learned by experience. Thus the print becomes "developed". Next the sheet is placed into a fixing bath. Then it is washed. All this is well-known procedure.

But in this procedure, the wetting of the paper causes it to expand, and subsequently drying causes some contraction. The expansion in different parts of the sheet may vary, and afterward the contraction may vary in different parts of the sheet. Thus the dimensions of the picture are changed and made uncertain. In some kinds of paper, the expansion is more in one direction than in the transverse direction, this being due to the arrangement of fibers in the paper.

This variation of the finished print is usually immaterial in ordinary photography but in color process work such variation is fatal for the reason that the process worker must have several prints of the same object and those prints must be of exactly the same size; for each must be printed in a different color and all printed on each other in order to make one finished color print or picture.

From the foregoing, it will be seen that stability of the printing surface in the plane of said surface is desirable.

To attain such a stable surface, prior to my invention, color process workers have used glass plates having a sensitized surface—such sensitized glass plates as are in ordinary use in photography for making negatives and positives and are known as "photographic plates".

But to this old method, there are various objections. The production of the glass plates is more expensive than the production of the sensitized paper. The transportation of the glass plates is more expensive and attended with greater risk of breakage. If a print on the glass plate is found to be defective, so that another print must be made, the loss of the first plate is more than the loss of a paper sheet. Retouching such a print on a glass plate is difficult and uncertain as to results. To photograph the glass positive, light must be placed behind the positive, and it is extremely difficult to do this photographing properly.

In the accompanying drawings,

Fig. 1 is a front view of a positive-receiving structure embodying my improvement;

Fig. 2 is a transverse section through the structure shown by Fig. 1;

Figs. 3 and 4 illustrate on a smaller scale other positives similar to that shown by Fig. 1.

In the practice of my invention, I use a sheet, C, of ordinary sensitized paper, such as manufacturers supply, and place over all of the back of the paper an adhesive, B, which is insoluble in cold water and the materials used in the developing, fixing and washing. Then this sheet thus backed with such adhesive is laid upon a foundation plate, A, of glass or metal or any other firm material not soluble in the materials above mentioned. After the adhesive has dried, I print on the sensitized outer face of the paper in the usual manner. Then I put the paper, together with the glass or metal or other similar plate, through the usual developing and fixing and washing, and drying stages.

While going through these several stages, every part of the paper sheet is held against lateral expanding or shrinking, any movement in the nature of expanding or shrinking being perpendicular to the face of the plate on which the paper sheet is supported. Thus all parts of the finished print correspond in size or in proportion to the corresponding parts of the negative from which the print was made.

Thus we have direct printing on the print-

ing surface, and we have paper texture for the printing surface, and we have a surface on which retouching and any other correctional treatment, for making parts lighter or darker, etc., may be applied under conditions allowing foreseeing results. The printing surface is on the sensitized printing paper which, as above stated, is cheaper than sensitized glass plates. The glass, metal, or similar plate used as a foundation for the paper sheet may be used repeatedly, a paper sheet being placed on both sides of the plate, or one paper sheet being placed over another, or the first paper sheet being removed by the use of any material capable of dissolving the adhesive by which the paper sheet was attached to the foundation plate.

By printing the positives on paper, according to my method, after the first print is made, I can resensitize the paper (for example, with blue print solution), and then print over the first print, using a different negative from the same subject. Doing this eliminates some of the hand work by the process workers.

The "positives" thus printed by the photographer are passed on to the photo-engraver or the lithographer or the color worker for use in producing the finished picture.

I claim as my invention:

1. The herein-described method of making sets of positives from which color reproductions may be made, which method consists in making from the same subject a plurality of color separation negatives that register, also firmly securing a sensitized paper sheet to each of a plurality of foundation plates by means of the herein-described adhesive, whereby every sheet is held against expansion and contraction parallel to its plate, then allowing the adhesive to dry, then, while the sheets remain secured to the plates, printing through said negatives on the sensitized faces of said paper sheets, and then developing, fixing, and washing and drying the paper sheets, substantially as described.

2. In the herein-described art, a set of positives from which color reproductions may be made, each positive of the set consisting of a foundation plate and a sheet of paper and adhesive of the kind described between the plate and the sheet, whereby the sheet is held against expansion and contraction parallel to the plate, and each sheet bearing on its outer face a print from one of a like number of color separation negatives that register, substantially as described.

In testimony whereof I have signed my name, this 2nd day of November, in the year one thousand nine hundred and twenty-five.

FERNAND A. BOURGES.