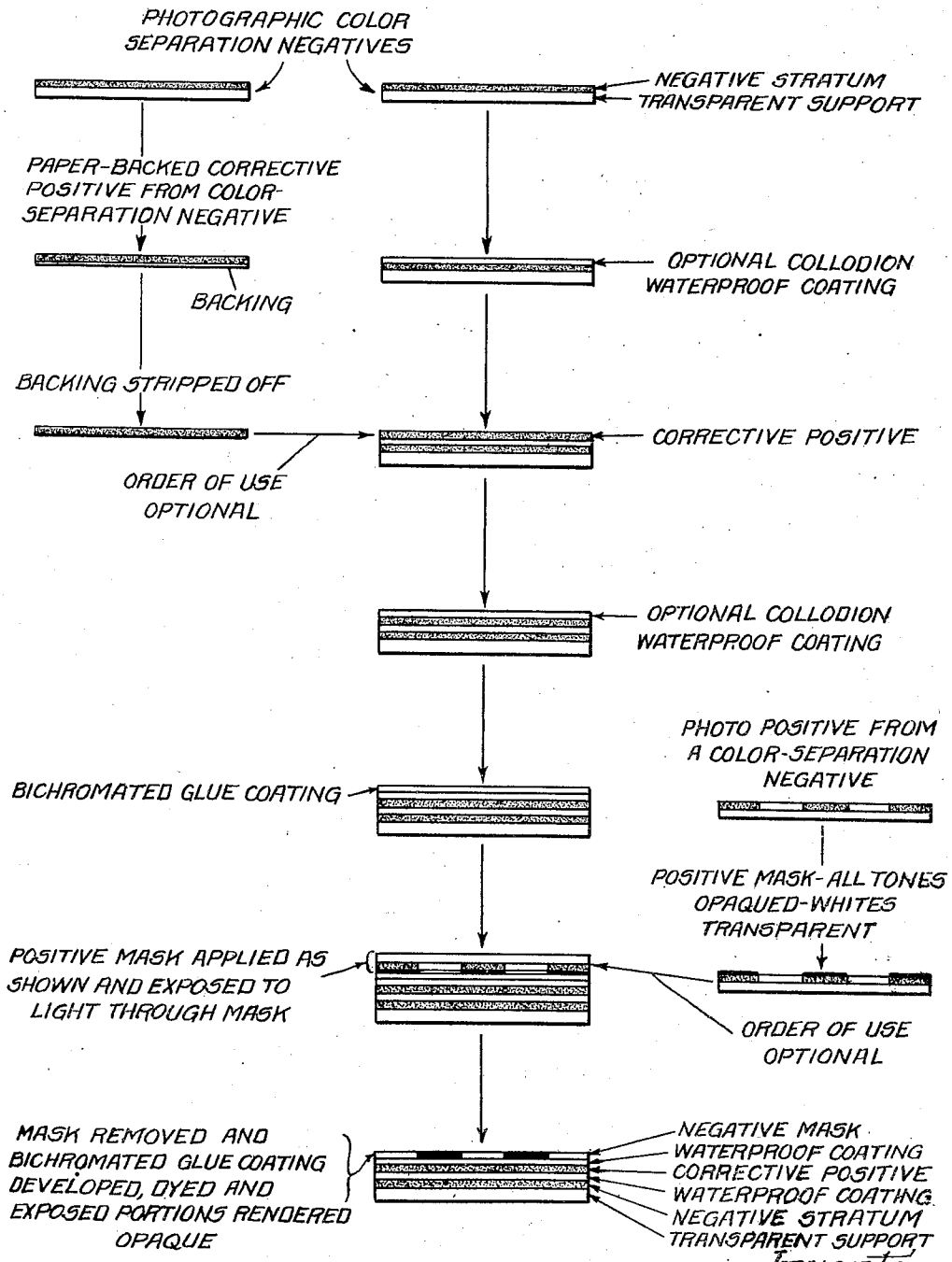
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CORRECTION OF NEGATIVES

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CORRECTION OF NEGATIVES

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The present invention pertains to novel betterments in the color correcting and masking methods used by the contact process of making corrected positives for half-tone engraving, offset, and gravure printing.

The invention, as illustrated in the accompanying drawing involves the use of a corrective overlay and of a mask which may be used singly or in combination with one another in one or more different relations.

Referring first to the color-improving procedure, I have heretofore invented a method of bettering the color properties of color-separation negatives by the use of positive film overlays therefor, the film being placed in register over the continuous-separation negative, the use of the film being essential for the contact method in that the film must come as close as possible to the gelatin or emulsion side of the plate to obtain proper dots in the screened positive made by contact with the separation-negative, but the employment of such corrective film has been found to have certain distinct disadvantages.

In this connection, attention is directed to my United States Patent No. 2,004,144, Process for photographically producing printing plates, granted June 11, 1935.

The first objectionable feature is that the positive film stretches or shrinks, being subject to atmospheric conditions, and hence making a perfect fit with the negative a matter of substantial difficulty.

A second drawback resides in the thickness of the film which interferes with the production of a proper dot formation in that its use results in the making of dots with considerable halo in the shadows and of dots of more or less indistinctness in the highlights, these characteristics being due to the refraction of the light caused by the thickness of the film and the non-curling coating which is placed thereon by the manufacturers, these two diffusing the beams of light to such an extent as to produce the objectionable feature mentioned.

Various experiments have been resorted to heretofore to substitute something different for this film which would eliminate its detrimental characteristics.

The present new method, in so far as it relates to color correction, has been found to eliminate the two objections specified and it consists in the employment of a much thinner, commercial strip-film which is a very thin light-sensitive emulsion on a paper-backing which, after development, is stripped off such backing.

While such present commercial strip-films on the market are made with contrasty emulsions employed for half-tone and line work, yet by a modification of the developer employed this film will make a satisfactory positive overlay for the corrective method, although it would be preferred to have a strip-film with a more suitable emulsion.

After the corrective positive is made by contact on this strip-film in any appropriate manner, as, for example, is indicated in Patent No. 2,004,144, it is stripped off its paper-backing while still wet and it is placed face-down on the emulsion side of the negative to be corrected, the negative preferably having first been previously coated with collodion to prevent the negative emulsion from absorbing water.

Such alterative or remedial emulsion positive film is laid in absolute register on the negative emulsion and to accomplish this satisfactorily the film can be stretched, if a trifle too small, and then it is squeegeed in contact with the collodion coating, if that has been employed, and the surplus water is eliminated by blotting paper, after which the dual-emulsion is dried.

Due to the fact that this emulsion-film is very thin, yet tough, it is more easily controlled than the thicker film and hence it may be placed in more accurate and precise register, and, because of its thinness and absence of non-curling coating, it does not interfere with the light action and it produces as good dot formation as a plate without it and also makes the color-corrective feature as positive as by the old method.

I have also heretofore invented a mask method to eliminate tones from the backgrounds of all four color-separation negatives for the purpose of producing pure whites as set forth in my patent application Serial No. 1,487, filed January 12, 1935.

This procedure involves the production of a set of color-separation negatives representing the individual colors required conjointly to reproduce the original subject, the making of a positive from one of said negatives, the opaquing on said positive of all tones other than white leaving the areas representing the whites transparent, the making from such opaqued positive a block-out or mask negative in which the areas representing the whites are opaque and all other areas are transparent, the superimposing of said block-out negative or mask in turn on and in register with each of the color-separation negatives, and making a set of white-corrected color-separation half-tone positives by light transmit-

ted through each of said negatives in turn and a half-tone screen or other suitable screen, each of such negatives having said mask in register therewith during the making of its corresponding positive.

Such mask heretofore employed was placed on the glass side of the negative and then used again for the next negative until it had been applied on all four of the negatives to be used.

In such employment it was placed in register with the negatives by the use of the existing register marks, but because of the fact that this has been done on the glass side of the negatives, the thickness of the glass has prevented an absolutely accurate register.

I have now found that each of these negatives can first be coated with a collodion over its emulsion which makes it waterproof and then coated over the collodion layer with a bichromated glue solution, after which it is exposed to light through the painted-in or opaqued positive mask.

Each such plate or print is now developed in the usual way by water and dyed in methyl violet solution in the same manner as a copper print for photo-engraving is dyed, which permits the extent of development to be made apparent but which does not modify the light-transmitting properties of the negative.

After having been thus dyed, each such negative is coated with a saturated solution of iodine and potassium bromide, which turns the film, where it has been exposed to light, a deep brown color and makes such portions photographically opaque.

All of these operations are performed on the gelatin side of the negative and hence the mask is in more perfect register and sharper than has heretofore been customary, the mask not being objectionable to the making of a contact positive as the thinness of the coating so obtained does not interfere with the dot formation.

This mask may be used alone on the negative, or a corrective film overlay such as described above may be applied to the negative over the mask, or the overlay may be applied to the negative and the mask provided over the overlay.

The separating or intervening collodion coatings may be used between each two of the three layers or one may be employed between any two, or such collodion coatings may be dispensed with, but it should be understood that in case the overlay or mask is applied directly to the gelatine negative, or to one another without such intervening collodion stratum, subsequent removal of the superposed corrective positive or mask would probably be precluded.

From what precedes it will be apparent that the overlay and mask may be applied to the negative stratum in any order, that either may be omitted, and that the waterproof collodion coatings may or may not be used as preferred, the chosen procedure, however, comprising the use of both the overlay and mask, the former correcting the negative as to color and the latter assuring pure whites.

The invention, as defined by the following claims, is susceptible of the incorporation of changes in the methods followed and in the results produced all without departure from the underlying principles on which the invention is based and without the sacrifice of any of its material advantages.

I claim:

1. A corrected negative of a subject consisting of a transparent-support, a negative-stratum of the subject on said support, a corrective-transparency stratum only of the subject and a negative-mask stratum only of the subject superposed in either order on and in register with said negative-stratum and with one another, all three strata being in adhered relation to one another, said mask being substantially-opaque for all white portions of the subject and otherwise transparent.

2. A corrected negative of a subject consisting of a transparent-support, a negative-stratum of the subject on said support, a waterproof-coating over said negative-stratum, a corrective-transparency stratum only of the subject and a negative-mask stratum only of the subject superposed in either order on said waterproof-coating and in register with said negative-stratum and with one another, and a waterproof-coating between said transparency and mask strata, all strata and waterproof-coatings being in adhered relation to one another, said mask being substantially-opaque for all white portions of the subject and otherwise transparent.

3. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of making a corrective-transparency stratum only of the subject, applying said corrective-transparency stratum on and in register with said negative-stratum, making a mask of the subject on and in register with said negative-stratum and in which mask the whites of the subject are substantially opaque and all other areas transparent, said negative-stratum being supplied with said registering corrective-transparency stratum and said mask in any order, said corrective-stratum and said mask being without support other than said negative-stratum and its support.

4. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of making a corrective-positive on a light-sensitive emulsion on a backing, stripping said positive from said backing, superposing said corrective-positive stratum on the negative-stratum on said support in adhered and registered relation with said negative-stratum, coating said corrective-stratum with a light-sensitive medium, exposing said coating to light through a positive-mask of the subject and in which mask all tones other than white are substantially opaque and all whites are transparent, and developing said exposed coating and rendering said light-exposed areas of said coating opaque.

5. The process set forth in claim 4 in which said coating is a bichromated-glue solution.

6. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of coating said negative-stratum with a light-sensitive medium, exposing said coating to light through a positive-mask of the subject and in which mask all tones other than white are substantially opaque and all whites are transparent, developing said exposed coating and rendering said light-exposed areas of said coating opaque, making a corrective-positive of the subject on a light-sensitive medium on a backing, stripping said positive from said backing, and superimposing said corrective-positive stratum on said mask in adhered and registered relation with said negative-stratum and mask.

7. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of coating said negative-stratum with a bichromated-glue solution, exposing said coating to light through a positive-mask of the subject

and in which mask all tones other than white are substantially opaque and all whites are transparent, developing said exposed coating and rendering said light-exposed areas of said coating opaque, making a corrective-positive of the subject on a light-sensitive emulsion on a backing, stripping said positive from said backing, and superimposing said corrective-positive stratum on said mask in adhered and registered relation with said negative-stratum and mask.

8. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of coating said negative-stratum with a waterproof material, making a corrective-positive of the subject on a light-sensitive emulsion on a backing, stripping said positive from said backing, superimposing said corrective-positive stratum on said waterproof-coating in adhered and registered relation with said negative-stratum, coating said corrective-stratum with a waterproof material, coating said second waterproof-coating with a light-sensitive medium, exposing said light-sensitive coating to light through a positive-mask of the subject in which all tones other than white are substantially opaque and all whites are transparent, and developing said exposed coating and rendering said light-exposed areas of said second coating opaque.

9. The process set forth in claim 8 in which said light-sensitive medium is a bichromated-glue solution.

10. In the process of correcting a negative-stratum of a subject on a transparent-support, the steps of applying a waterproof-coating to said negative-stratum, coating said waterproof-coating with a light-sensitive medium, exposing said light-sensitive coating to light through a positive-mask of the subject and in which mask all tones other than white are substantially opaque and all whites are transparent, developing said exposed coating and rendering the light-exposed areas of said coating opaque to form a negative-mask, coating said developed light-sensitive coating with a waterproof-coating, making a corrective-positive of the subject on a light-sensitive medium on a backing, stripping said positive from said backing, and superimposing said corrective-positive-stratum on said second waterproof-coating in registered relation with said negative-stratum and negative mask.

11. The process set forth in claim 3 including first applying a waterproof-coating on said negative-stratum and applying a waterproof-coating to the multiple-strata prior to supplying said multiple-strata with its final layer.

12. A corrected negative of a subject including a transparent-support, a negative-stratum of the subject on said support, a corrective-transparency stratum only of the subject and a negative-mask stratum only of the subject superposed in either order on and in register with said negative-stratum and with one another, said mask being substantially-opaque for all white portions of the subject and otherwise substantially-transparent, and a waterproof-coating stratum between at least two of said strata, all strata being in adhered relation to one another.

WILLIAM J. WILKINSON.