

Oct. 21, 1952

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2,614,926

PHOTOGRAPHIC PRODUCT COMPRISING AN ADDITIVE
COLOR SCREEN, A SILVER HALIDE LAYER AND
A RUPTURABLE CONTAINER AND A PROCESS
OF ADDITIVE COLOR PHOTOGRAPHY

Filed Jan. 17, 1946

2 SHEETS—SHEET 1

FIG. 1

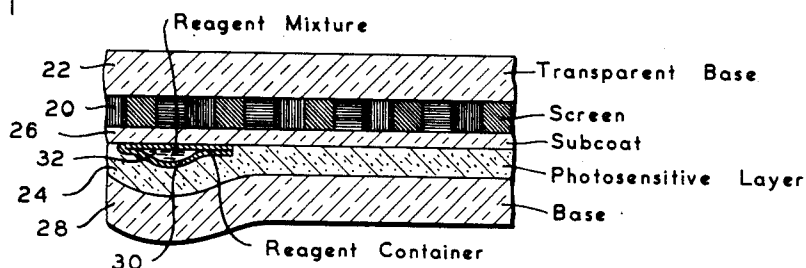


FIG. 2

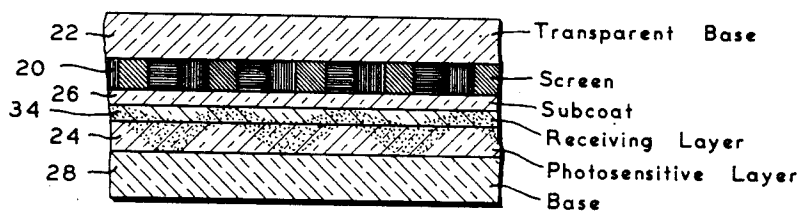


FIG. 3

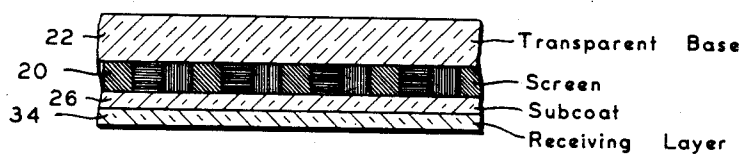
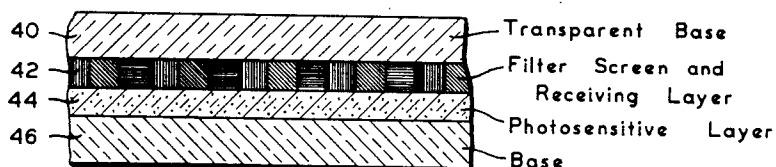


FIG. 4



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2 SHEETS—SHEET 2

FIG. 5

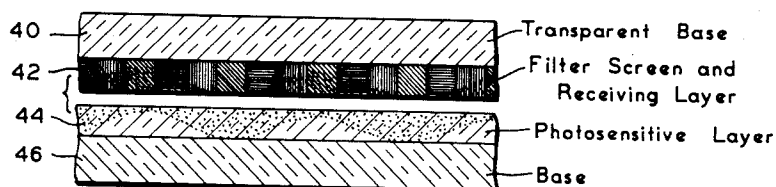


FIG. 6

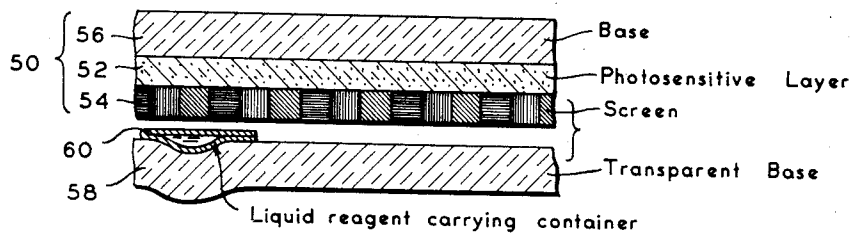


FIG. 7

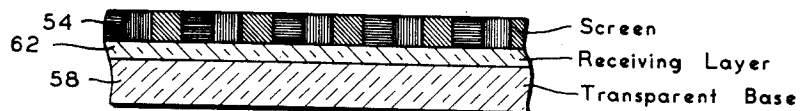
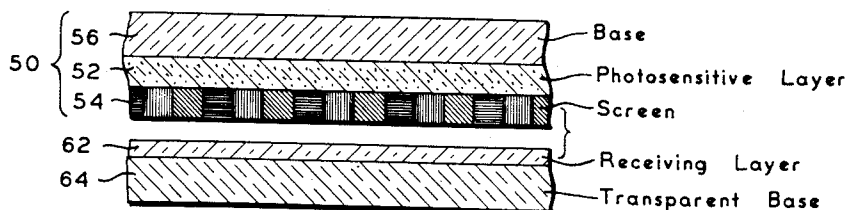


FIG. 8



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PHOTOGRAPHIC PRODUCT COMPRISING AN
ADDITIVE COLOR SCREEN, A SILVER HAL-
IDE LAYER, AND A RUPTURABLE CON-
TAINER, AND A PROCESS OF ADDITIVE
COLOR PHOTOGRAPHYEdwin H. Land, Cambridge, Mass., assignor to
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Application January 17, 1946, Serial No. 641,808

14 Claims. (Cl. 95—2)

1

This invention relates to photography, and more particularly to processes and products for use in the production of color images.

It is old in the art of color photography in the formation of a color reproduction of desired subject matter to expose a color-sensitized photosensitive emulsion to said subject matter through a multicolored screen composed of minute filter elements in the three primary colors, and to provide thereafter in the carrier material of the photosensitive layer a reversed image of the latent image formed by said exposure. Numerous filter screens of the type useful for this process and various methods whereby said screens may be formed are described in detail in the "History of Color Photography," by Joseph S. Friedman, published in 1944 by the American Photographic Publishing Company, in chapters 12 and 13 thereof.

One object of the invention is to provide an improved process of forming color reproductions using a filter screen, which process may be carried out simply and rapidly as, for example, in the camera in which the exposure of the photosensitive layer is effected, the positive transparency being obtainable shortly after the exposure.

Another object of the present invention is to provide a novel product which embodies within itself substantially all of the materials necessary for carrying out the above process.

A further object of the present invention is to provide a novel sheet-like product of the above character wherein the process of forming the color transparency may be performed without wetting the external surfaces of said sheet-like product, thereby approximating a dry processing.

A still further object of the present invention is to provide a novel process and a novel product whereby color reproductions of predetermined subject matter may be obtained with a minimum number of processing steps.

These and further objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and relation and order of one or more of such steps with respect to each of the others, and the article possessing the features, properties and the relation of elements which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawings, wherein:

2

Figure 1 is a longitudinal, somewhat diagrammatic and fragmentary sectional view of a novel composite sheet-like product for carrying out the novel process of the invention, said product being shown with the thicknesses of the several strata or layers thereof greatly exaggerated;

Fig. 2 is a view similar to Fig. 1 of a fragment of the film means of Fig. 1 during a stage of the process;

Fig. 3 is a view like Fig. 1 of the positive transparency obtained by carrying out the process of the invention with the film means of Fig. 1;

Fig. 4 is a view like Fig. 1 of another embodiment of film means for carrying out a modification of the novel process of the invention;

Fig. 5 is a view like Fig. 1 showing the sheet materials of Fig. 4 during the final stage of the formation of the transparency;

Fig. 6 is a view similar to Fig. 1 of a pair of sheet materials which may be used in the formation of a positive transparency in accordance with the present invention;

Fig. 7 is a view like Fig. 1 of the transparency obtained from the materials shown in Fig. 6; and

Fig. 8 is a view similar to Fig. 1 of a further modification of sheet materials useful in the performance of the process.

In accordance with the invention, a photosensitive emulsion which is sensitive to wavelengths of light throughout substantially the entire visible spectrum, i. e., a panchromatic emulsion, is exposed through a filter screen to the subject matter of which a color reproduction is desired, the exposure being effected while said emulsion constitutes one and the filter screen another stratum of a multilayer assemblage. After the exposure and while the photosensitive layer is held against lateral and transverse movement relative to the screen, a reversed image of the latent image in said photosensitive layer is obtained in a suitable receiving layer, which is a separate stratum from the carrier material of the photosensitive layer. The receiving layer may be a layer of photographically inert material disposed adjacent to said screen or it may be the carrier material for the filter media which provide the filter elements of the screen. After the formation of the reversed image in the receiving layer, the photosensitive layer is removed from the layer or layers containing the reversed image and the filter media of the screen, the latter layer or layers providing a positive transparency in color of the subject matter to which the photosensitive layer was exposed.

The reversed image is preferably obtained in silver and may be formed by permeating with a liquid reagent at least the surface portion of the

side of the photosensitive layer which is adjacent to the filter screen, said reagent being adapted as a result of this single liquid permeation to develop the latent image in the photosensitive layer and to form the desired reversed image in silver in the receiving layer. The reversed image thus formed is a fixed stable image which requires no further processing, so that once the photosensitive layer has been permeated and a sufficient time has elapsed to form the reversed image in silver, the only step necessary to the attainment of a completed positive transparency of the desired subject matter is the separation of the photosensitive layer from the layer or layers comprising the filter screen and containing the reversed silver image.

One novel form of film means for carrying out the process comprehended by the present invention comprises a sheet-like product which embodies within itself all of the materials required to obtain the desired positive transparency. One embodiment of a product of this type is shown in Fig. 1, and as illustrated said product comprises a plurality of layers or strata, one of which is a filter screen 20, the latter being preferably supported by a transparent base 22, for example, of a transparent plastic which may be one of the transparent cellulose esters, mixed esters, or ethers, commonly used as film bases. Another layer 24 of the film comprises a panchromatic photosensitive material such, for example, as a color-sensitized silver halide emulsion. Between screen 20 and photosensitive layer 24 there is preferably provided a transparent layer 26 which may serve as a protective layer for said filter screen and/or as a subcoating for adhering the receiving layer for the reversed image to said film, or as the receiving layer for the reversed image. A suitable base 28 for photosensitive layer 24 is also provided and may be either a transparent film base equipped with a suitable antihalation backing or a substantially opaque base formed, for example, of paper.

The sheet-like product comprising the above assemblage of layers may consist of a single frame and a plurality of single frames may be combined to form a film pack, or said product may be in the form of a strip which provides a plurality of frames and may be packaged and used as a roll film.

To releasably contain the liquid reagent for forming the reversed image, the film unit is provided with one or more elongated containers 30 which are mounted preferably transversely of the film and between layers 24 and 26. In the preferred form, one of containers 30 is associated with each film frame and is mounted adjacent the leading edge of the frame, and contains a sufficient quantity of liquid reagent 32 to form the desired reversed image of a latent image in said frame. Accordingly, each container is preferably so constructed that the application of suitable mechanical stress to the film unit as, for example, the squeezing together of the faces of the unit, causes the reagent to be released longitudinally in the direction of the frame with which said container is associated. Containers 30 are preferably water-vapor-impervious and oxygen-impervious and may, for example, be formed of a single sheet of water-vapor- and oxygen-impervious material such as a wax-coated metal foil, or a metal foil coated with an alkali-resistant material such as a vinyl acetal resin, e. g., Alvar or Butvar.

To insure a relatively uniform permeation of

at least the surface portion throughout the entire exposed frame of the photosensitive layer upon release of the reagent, the reagent is relatively viscous, having a viscosity preferably of the order of two thousand centipoises, or higher.

To impart the desired viscosity to the reagent, a thickening agent may be used, and is preferably a water-soluble, film-forming material such as a high molecular weight polymer or protein, for example gelatin or a polymeric water-soluble ether inert to an alkali, such as hydroxyethyl cellulose or a metal salt of carboxymethyl cellulose, for example sodium or aluminum carboxymethyl cellulose which, when spread while in solution over a surface of a photosensitive layer, quickly forms a relatively firm, dimensionally stable film adjacent said layer. When a reagent of this preferred type is used, i. e., a reagent containing a film-forming material, layer 26 is preferably a subcoating for which the film thus formed has a greater affinity than for the photosensitive layer and may, for example, be formed of the same plastic material as the material of the film obtained from the reagent. The film formed by the reagent serves as the receiving layer for the reversed image.

One form of liquid reagent includes as ingredients a developer for reducing exposed silver halide to silver and a compound for reacting with the undeveloped silver halide to form a silver complex soluble in the reagent. The reagent also preferably contains an alkali and the thickener. Examples of this type of reagent may be found in my copending application Serial No. 578,379, filed February 17, 1945, for Photographic Products, now abandoned, and also in my Patent No. 2,543,181, issued February 27, 1951, for Photographic Product Comprising a Rupturable Container Carrying a Photographic Processing Liquid, said patent being in part a continuation of said abandoned application. Containers for the liquid reagents suitable for use in carrying out the invention described herein are also set forth in my said Patent No. 2,543,181.

In carrying out the novel process of the invention, the above-described film unit is first exposed through base 22 so that the exposure of photosensitive layer 24 to the particular subject matter is effected through screen 20. Thereafter the film unit is subjected to compression as by being passed longitudinally through a pair of pressure rollers which are adapted to press together the opposite faces of the film. These rollers may be located in the camera in which the film unit is exposed and as said unit passes through said rollers, the reagent is released from container 30 and spreads between layers 26 and 24, permeating the surface portion of the exposed frame of photosensitive layer 24 and forming a receiving layer 34 (Fig. 2) adjacent said photosensitive layer. The reagent develops the latent image in layer 24 and forms a soluble complex with the unexposed silver halide, transporting at least part of said soluble complex to layer 34 wherein said complex is reduced to form the reversed image. The complex may be transported in part also to layer 26 and reduced therein so that the reversed image is actually formed partly in the latter layer and partly in layer 34.

When a sufficient time has elapsed to permit the formation of the reversed image, layers 24 and 28 are preferably stripped from the remainder of the film, leaving layers 20, 22, 26 and 34 (Fig. 3) which form, in assembly, a positive transparency in full color of the subject matter

to which layer 24 was originally exposed. Exhausted container 30 may be removed with photosensitive layer 24 or after said photosensitive layer is stripped from the remainder of the film unit.

It is noted that the reagent mixture in container 30 in the above-described embodiment comprises as one of its ingredients film-forming material which is adapted when said reagent mixture is spread between layers 24 and 26 to provide receiving layer 34 for a reversed image of the image formed in layer 24. The other substances contained in said reagent mixture are adapted upon permeation of at least the surface portion of photosensitive layer 24 to develop the exposed silver halide in said layer and to form a soluble silver complex in the unexposed portions of said layer, said complex being transported at least in part by the reagent to receiving layer 34 and forming, upon reduction in said layer, the desired reversed image of the latent image in layer 24. It is expressly understood, however, that instead of utilizing a reagent mixture 32 which contains a film-forming substance, it is possible to employ a reagent which does not contain such a substance, but which, upon permeation of photosensitive layer 24, is adapted to form a soluble complex which is transported to layer 26 and reduced in the latter layer to form the reversed image. In the latter case, layer 26 is formed of a material having a substantially greater affinity for filter screen 20 than for photosensitive layer 24.

In a further modification of the novel process of the invention, the receiving layer for the reversed image of the latent image formed in the photosensitive layer is the material which provides the filter screen. For example, the filter screen may be formed by dyeing a plastic material which is permeable to the reagent and is suitable for receiving the positive image. Thin sheets of said plastic material may be dyed with dyes of the three primary colors, which dyes are adapted to remain fast throughout the processing, causing the formation of the reversed image. These dyed sheets, for example of sodium carboxymethyl cellulose, are then superposed one upon the other until a solid block constituting, in cross-section, a filter screen consisting of a series of layers alternating in the three primary colors is obtained. After the block is formed, it is cut cross-sectionally as by means of a microtome to give sheets of screen suitable for use in the present process. It is, of course, possible by reforming the block and cutting it again along a different section to obtain a checkerboard mosaic of the filter elements instead of a line mosaic. A filter screen of this type may also be obtained, for example, by utilizing a plastic suitable for a receiving layer as the carrying element for colored particles which constitute the filter elements.

One form of sheet-like product which is suitable for carrying out this last-described process is shown in Figs. 4 and 5 and comprises a transparent base 40 for mounting a filter screen 42 of the type described above. Contiguous to screen 42 is a photosensitive layer 44, for example of a panchromatic silver halide emulsion which, in turn, is mounted or supported on a suitable transparent or opaque base 46. A liquid container (not shown) similar in function and design to container 30 of the film means of Fig. 1 preferably comprises a part of the film unit of Fig. 4 and when the film unit is subjected to mechanical stress as by being passed through a pair of pres-

sure rollers the reagent content of said container is released and spread throughout the interface between layers 44 and 42, at least in the area covered by the exposed frame of photosensitive layer 44 with which said container is associated. The permeation of layers 42 and 44 by the reagent mixture causes the formation in layer 42 of a reversed image of the latent image in layer 44. Thereafter, photosensitive layer 44 and base 46 are separated from layers 40 and 42, the latter layers providing a fixed positive transparency in full color of the subject matter to which layer 44 was exposed.

It is to be understood that in carrying out the last-described process the reagent which is utilized is preferably one which does not contain the film-forming material is preferably one in which may be employed which contains a film-forming substance as a thickening agent, in which event the film-forming material is preferably one in which the soluble silver complex tends to precipitate less rapidly than in the carrier material of the filter screen. The reversed image is then formed in part in said film, but predominantly in the carrier material of screen 42.

In a still further modification of the invention, the filter media which provide the screen with the minute filter elements are adapted to be transferred to the receiving layer at substantially the same time that the soluble silver complex forms the reversed image in the receiving layer. In this embodiment of the process the photosensitive layer and the filter screen may comprise part of a film unit separate from the base in or on which the reversed image is finally formed and to which the filter screen media are transferred during said formation, and a film unit 50 of this type is shown in Fig. 6 wherein stratum 52 is the photosensitive layer, stratum 54 the filter screen, and stratum 56 a base for said photosensitive layer.

Filter screen 54 may, for example, be formed of a plastic material which is permeable to the reagent, such as gelatin, cellophane or sodium carboxymethyl cellulose, and may include as a filter media a plurality of dyes or colored powders. Where a dye is used, it may be applied to the surface of the carrier material or may stain the thickness of the carrier material. If colored powders are used as the filter media, the latter may be coated upon said carrier layer or dispersed within said carrier layer in a thickness just sufficient to yield a single layer of colored particles and may be a glass, a nitrocellulose, gums, varnishes, pollen, microbes or bacteria which have been dyed and then ground or atomized to powdered form. In a still further form of the filter screen, the filter media may be provided by a fabric woven from fine fibers which are dyed the three primary colors and are supported by or embedded in the carrier material. The colored fibers are woven in one direction and are held together by colorless and transparent fibers woven in the other direction. Artificial silk fibers, rayons, nylons, et cetera, are suitable for this purpose.

To carry out the novel process, photosensitive layer 52 is exposed through screen 54 and thereafter the film unit 50 has the filter screen side thereof brought into face-to-face engagement with a suitable base 58 formed, for example, of a transparent plastic material. Mounted on base 58 is a reagent-carrying container 60 which is adapted to release its contents between base 58 and screen 54 when the latter are pressed together and to cause the reagent to spread throughout

substantially the entire area of the exposed frame of layer 52. The reagent is preferably one containing a film-forming substance which has a high affinity for the carrier material of screen 54 and also for base 58. The liquid content of the reagent is adapted to permeate through filter screen 54 into layer 52 and to develop the exposed silver halide in said layer while forming a soluble silver complex with at least part of the unexposed silver halide. This complex is transported to receiving layer 62 (Fig. 7) formed by the reagent and is reduced in said receiving layer to form the reversed image. It is to be expressly understood that a part of the precipitation of silver may occur in the carrier material of filter screen 54, particularly where the latter is formed of the same material as the material of receiving layer 62.

Subsequent to the formation of the reversed image, base 58 is separated from base 56, and because of the affinity between screen 54, receiving layer 62 and base 58, the screen remains attached to said receiving layer and is separated from photosensitive layer 52 which remains fixed to base 56. To facilitate this separation, filter screen 54 may be initially adhered to photosensitive layer 52 by means of an adhesive coating which is highly soluble in the liquid reagent. During the formation of the reversed image the adhesive is dissolved and the filter screen is rendered substantially free for transfer to the receiving layer.

It will now be apparent that instead of employing a film-forming reagent, the reagent may be one which does not contain a film-forming substance, and the reversed silver image may be formed in filter screen 54, the latter being rendered sufficiently adherent to base 58 by the reagent so that upon separation of bases 58 and 56 the filter screen is removed from photosensitive layer 52 and remains secured to base 58.

In a still further modification of the invention, only the filter media are transported to the receiving layer 62. In this form of the invention the carrier material for filter screen 54 is preferably a film-forming substance which is securely attached to the photosensitive layer and which contains as its filter media water-soluble dyes which are more substantive to the material of receiving layer 62 than to the carrier material of filter screen 54. Accordingly, when the reagent is spread between base 58 and filter screen 54 and effects the formation of receiving layer 62, it also causes the filter media contained in filter screen 54 to be transferred to the said receiving layer. This same result may be effected when using filter media in the form of colored particles by employing as the carrier or support for said colored particles a material which is soluble in the reagent. In this form of the invention the reagent acts to dissolve the carrier and the particles are caused to adhere to receiving layer 62.

The above-described processes wherein at least the filter media of the filter screen are transported to the receiving layer may be carried out with a preformed receiving layer 62 mounted on a suitable base 64, as shown in Fig. 8. The latter may be used in conjunction with film unit 50, and in use receiving layer 62 is first permeated with the reagent as by being floated in a bath of the reagent. The relatively nonviscous reagents described in my application Serial No. 561,696, filed November 3, 1944, for Photographic Product and Process, now Patent No. 2,500,421 being suitable for this purpose. After the permeation of said receiving layer, sheet 64 has receiving layer 62

brought into face-to-face contact with the screen side of film unit 50. The reversed image is formed in layer 62 and the filter screen or the filter screen media transferred to said layer in accordance with any of the aforementioned methods.

Since certain changes in carrying out the above process, and certain modifications in the article which embody the invention, may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative only and not in a limiting sense.

What is claimed is:

1. In a color photographic process making use of an additive color screen for taking and viewing purposes, the steps of exposing through said screen a color sensitive silver halide emulsion layer arranged in superposed relation to said screen to form a negative latent image in said emulsion layer, said screen comprising a layer of a transparent material carrying colored filter media which are arranged to provide a screen pattern and which are of at least two different colors corresponding to the additive colors desired for said screen, developing the latent image in said emulsion layer to silver by absorbing in said emulsion layer a liquid reagent comprising a developer and a silver halide solvent which forms a soluble silver complex with unexposed silver halide, transferring from said emulsion layer, by imbibition, at least part of said silver complex to at least a stratum of a permeable transparent layer constituting a receiving layer for said complex and arranged in superposed relation to said emulsion layer on the color screen side of the emulsion layer whereby to provide in conjunction with said emulsion layer and said color screen a unitary structure, holding said layers fixed against any appreciable relative movement in a direction parallel to the planes of said layers while transporting to said stratum a quantity of said soluble complex sufficient to form in said stratum a positive silver image of said latent image, and thereafter separating said emulsion layer from said unitary structure while retaining said filter media and said receiving layer in fixed relation one to the other.

2. A process as defined in claim 1 wherein said reagent contains a film-forming material adapted to form a solid, permeable, transparent film and wherein said process includes the step of forming, in said unitary structure on the same side of said emulsion layer as said color screen and with said film-forming material, a transparent film in a layer which is adapted to receive at least a part of said silver complex adapted to form said positive image.

3. A process as defined in claim 1 wherein said positive image is formed, at least in part, in said color screen.

4. A color photographic process as defined in claim 1, wherein at least the filter media of said color screen, while the layers of said unitary structure and said filter media are held fixed against appreciable movement in a direction parallel to the planes of said layers, are adhered, substantially without disturbing the arrangement of said media in said screen pattern, to a surface of a layer which is included in said unitary structure and through which said positive image is viewable, and wherein at least said emulsion layer, after formation of said positive image, is separated from said unitary structure while retaining said filter media in said screen pat-

tern and while maintaining said fixed relation between said receiving layer and said filter media.

5. In a process as defined in claim 1, the steps which comprise adhering the color screen layer to a surface of a transparent layer which is a part of said unitary structure while the layers of said unitary structure are held against relative movement in a direction parallel to the planes thereof, and thereafter separating said emulsion layer from said unitary structure while retaining said color screen layer and said receiving layer in said fixed relation.

6. A color photographic process as defined in claim 1 wherein said emulsion layer comprises a panchromatic silver halide emulsion and said color filter media comprise red components, blue components and green components.

7. In a color photographic process making use of an additive color screen for taking and viewing purposes, the steps of forming a negative latent image in an emulsion layer of a photosensitive element comprising a color sensitive silver halide emulsion layer and a color screen layer in superposed relation thereto on the exposure side thereof, by exposing said emulsion layer through said screen, said color screen comprising a layer of a transparent material carrying colored filter media which are arranged to provide a screen pattern and which are of at least two different colors corresponding to the additive colors desired for said screen, developing the latent image in said emulsion layer to silver by absorbing in said emulsion layer a liquid reagent comprising a developer and a silver halide solvent which forms a soluble silver complex with unexposed silver halide and bringing a transparent sheet material into face-to-face contact with the screen side of said photosensitive element, adhering at least the filter media of said filter screen to said sheet material, transferring from said emulsion layer, by imbibition, at least part of said silver complex to the composite product comprising said sheet material and said filter media and forming therein a positive image of said negative image and thereafter separating said composite product from said emulsion layer substantially without disturbing the arrangement of said filter media in said screen pattern.

8. A color photographic process as defined in claim 7 wherein said color screen layer is adhered to said sheet material and said sheet material and color screen layer are separated from the emulsion layer.

9. In a color photographic process making use of an additive color screen for taking and viewing purposes, the steps of forming a negative latent image in an emulsion layer of a photosensitive element comprising a panchromatic silver halide emulsion layer and a color screen layer in superposed relation thereto on the exposure side thereof, by exposing said emulsion layer through said screen, said screen comprising a layer of a transparent material carrying colored filter media which are arranged to provide a screen pattern and which comprise red components, blue components and green components, developing the latent image in said emulsion layer to silver by absorbing in said emulsion layer a liquid reagent comprising a developer, a silver halide solvent which forms a soluble silver complex with unexposed silver halide and a film-forming material adapted to form a solid, permeable, transparent film, transferring from said emulsion layer by imbibition at least part of said silver complex to at least a stratum of a permeable transparent lay-

er constituting a receiving layer for said complex and arranged in superposed relation to said emulsion layer on the color screen side of said emulsion layer and forming with said film-forming material said receiving layer whereby to provide in conjunction with said emulsion layer and said color screen a unitary structure, holding said layers fixed against any appreciable relative movement in a direction parallel to the planes of said layers while transporting to said stratum a quantity of said soluble complex sufficient to form in said stratum a positive silver image of said latent image, and thereafter separating said emulsion layer from said unitary structure while retaining said filter media and said receiving layer in fixed relation one to the other.

10. The process as defined in claim 1 wherein said reagent contains film-forming material adapted to form a solid, permeable, transparent film and wherein said processing includes the step of forming in said unitary structure between said screen and said emulsion layer a transparent film in a layer which receives at least a part of said silver complex adapted to form said positive image.

11. As a new article of manufacture, a photographic product having a multiplicity of layers and adapted to have formed therein a reverse image of a latent image contained in a photosensitive layer of the product, said product including a color-sensitive silver halide layer as a photosensitive layer thereof, an additive color screen comprising a layer of a transparent material and colored filter media carried thereby and arranged in a screen pattern, said colored filter media being of at least two different colors selected to provide the desired colors for said screen, said screen layer and said photosensitive layer being positionable in superposed relation whereby said photosensitive layer is exposable by actinic light transmitted through said screen layer and said layers, when so positioned being releasably held in said superposed relation, said screen layer providing means for supporting, in superposed relation thereto and to said photosensitive layer, a permeable stratum of an image-receptive material in integral attachment to said screen layer whereby said screen layer and said stratum are separable as a unit from said photosensitive layer, and a rupturable container holding a liquid processing reagent carried by one of the layers of said product and located between two of the layers of said product at a position for releasing its liquid content therebetween for permeation at least into said photosensitive layer, said processing reagent including a silver halide developer and a silver halide solvent adapted to develop latent image in said photosensitive layer and form as a result of said development a differential disposition of silver complex for transfer by imbibition to provide in said stratum said reverse image.

12. As a new article of manufacture, a photographic product having a multiplicity of layers and adapted to have formed therein a reverse image of a latent image contained in a photosensitive layer thereof, said product including as the layers thereof at least a color-sensitive silver halide layer providing the photosensitive layer of the product and an additive color screen comprising a transparent material and colored filter media carried thereby and arranged in a screen pattern, said colored filter media being of at least two different colors selected to provide the desired colors for said screen, said photosensitive layer and said screen layer being mounted and

arranged in superposed relation whereby said photosensitive layer is exposable by actinic light transmitted through said screen layer with said screen layer providing means for supporting, at a location between the screen layer and the photosensitive layer, a stratum of an image-receptive material for receiving said reverse image, a rupturable container holding a liquid processing reagent, said container being carried by one of the layers of said product and being located between two of the layers of said product and positioned for releasing its liquid content over said photosensitive layer for permeation therein and between said photosensitive layer and said screen layer upon the rupture of the container and the spreading of its liquid content in contact with said two layers, said liquid processing reagent including a film-forming material capable of forming a substantially permeable and transparent film of an image-receptive material integrally attachable to said screen layer and strippable from said photosensitive layer, and said product containing a silver halide developer and a silver halide solvent soluble in said reagent and rendered effective to develop said latent image and to form soluble silver complex for transfer from said photosensitive layer to provide said reverse image.

13. As a new article of manufacture, a photographic product having a multiplicity of layers and adapted to have formed therein a reverse image of a latent image contained in a photosensitive layer thereof, said product including as the layers thereof at least a color-sensitive silver halide layer providing the photosensitive layer of the product and an additive color screen comprising a transparent material and colored filter media carried thereby and arranged in a screen pattern, said colored filter media being of at least two different colors selected to provide the desired colors for said screen, said screen layer being strippably supported by said photosensitive layer whereby said screen layer and said photosensitive layer are in superposed relation and said photosensitive layer is exposable by actinic light transmitted through said screen layer, a rupturable container holding a liquid processing reagent carried by one of the layers of said product at a location between two of the layers of said product in a position for releasing its liquid content for permeation at least into said photosensitive layer upon the rupture of the container and the spreading of its liquid content in contact with said two layers, said product containing a silver halide developer and a silver halide solvent soluble in said reagent and rendered effective to develop said latent image and to form soluble silver complex for transfer from said photosensitive layer to provide said reverse image, and said screen layer being further characterized by the fact that it is formed of a material which is permeable to said liquid and which is receptive to said silver complex whereby said screen layer also provides means for receiving the reverse image adapted to be provided by said silver complex upon the transfer thereof.

14. As a new article of manufacture, a photo-

graphic product adapted to have formed therein a reverse image of a latent image contained in a photosensitive layer thereof, said product comprising a negative photographic element, including at least a color-sensitive silver halide layer, providing the photosensitive layer of the product, and an additive color screen layer, said screen comprising a transparent material and colored filter media carried thereby and arranged in a screen pattern, said colored filter media being of at least two different colors selected to provide the desired colors for said screen, said screen layer being strippably supported by said photosensitive layer in superposed relation thereto whereby said photosensitive layer is exposable by actinic light transmitted through said screen layer, a print-receiving element comprising at least a sheetlike support, said negative element and said print-receiving element being superposable upon each other with said screen layer next to said sheetlike support, and, when so positioned, being holdable in said arrangement, a rupturable container holding a liquid processing reagent, said container being carried by one of the layers of said product and being located between said print-receiving element and said screen layer when said negative element and said print-receiving element are in superposed relation for releasing its liquid content therebetween for permeation into said photosensitive layer and said screen layer upon the rupture of the container and the spreading of its liquid content in contact with said screen layer and said print-receiving element, said liquid processing reagent including a film-forming material capable of forming a substantially permeable and transparent film of an image-receptive material integrally attachable to said screen layer and to said sheetlike support, and said product containing a silver halide developer and a silver halide solvent soluble in said reagent and rendered effective to develop said latent image and to form soluble silver complex for transfer from said photosensitive layer to provide said reverse image.

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