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PHOTOGRAPHIC PRODUCT COMPRISING A PLURALITY
OF RUPTURABLE CONTAINERS, EACH CARRYING
A LIQUID FOR PROCESSING SAID PRODUCT

Filed Oct. 3, 1946

2 SHEETS—SHEET 1

FIG. 1

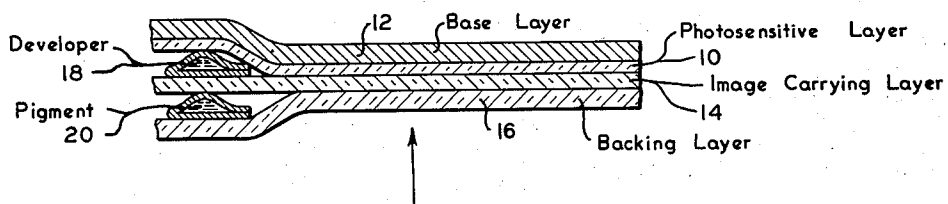


FIG. 2

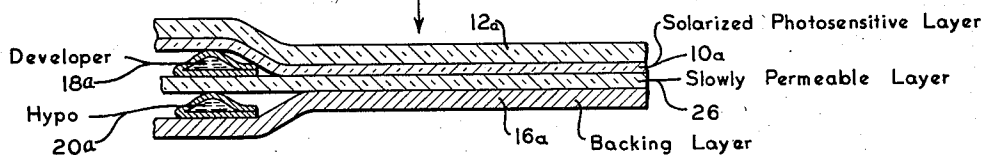
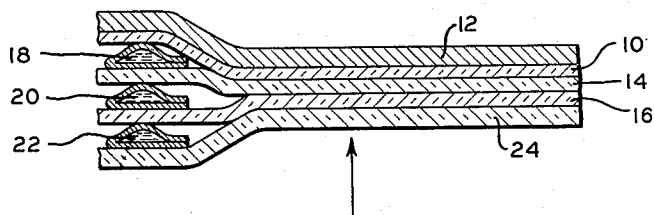


FIG. 3



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2 SHEETS—SHEET 2

FIG. 4

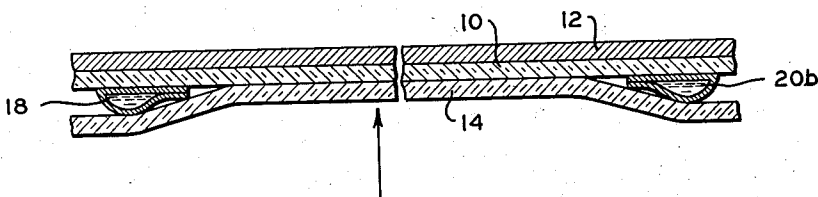
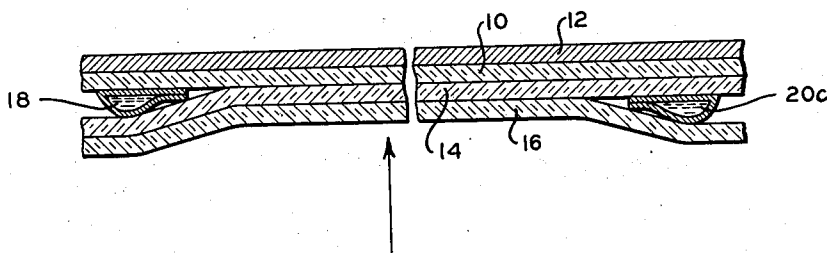


FIG. 5



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UNITED STATES PATENT OFFICE

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PHOTOGRAPHIC PRODUCT COMPRISING A PLURALITY OF RUPTURABLE CONTAINERS, EACH CARRYING A LIQUID FOR PROCESSING SAID PRODUCT

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Application October 3, 1946, Serial No. 700,931

23 Claims. (Cl. 95—8)

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This invention relates to photography, and more particularly to novel, composite photographic film units and processes.

One object of the present invention is to provide a photographic film unit carrying a plurality of separate liquid compositions capable of accomplishing a number of reactions within the film unit.

Another object is to provide a film unit of the above type wherein the mounting of said liquid compositions is such that by a single treatment of said unit, subsequent to exposure thereof, said reactions may be caused to take place simultaneously or in a predetermined sequence to give a final positive image.

Another object is the provision of a composite photographic film unit comprising at least a photosensitive layer, a liquid-containing means positioned adjacent said photosensitive layer so as to discharge its liquid in contact with said photosensitive layer, another layer, said other layer being transparent, and another liquid-containing means positioned adjacent said transparent layer so as to discharge its liquid in contact with said transparent layer, said second-named means having therein a substance adapted to alter the spectral characteristics of said transparent layer.

Still another object is to provide a composite photographic film unit comprising a photosensitive layer and several containers for liquid compositions, one of said liquid compositions being capable of producing a visible image in said film unit and the other liquid composition being capable of forming a background of predetermined spectral characteristics for said image.

Another object is to provide a composite photographic film unit comprising a solarized silver halide photosensitive layer, another layer, means for developing a positive image in said photosensitive layer, a silver halide solvent, and means for retarding the action of the silver halide solvent on said photosensitive layer until the development of said image is substantially completed.

Another object is to provide a composite photographic film unit of the type mentioned above wherein the photosensitive layer and the image-carrying layer are protected by layers of light-impervious material, so that the film unit may be removed from a camera immediately after processing without being affected by light, at least one of said light-impervious layers having been formed in the processing of said film unit.

Another object of the invention is to provide a novel process for treating a novel, photo-

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graphic film unit having a plurality of layers, one of said layers being a photosensitive layer, which comprises introducing between several pairs of said layers several liquid compositions, producing by means of one of said liquid compositions a positive image, and reacting said other liquid with a portion of said film unit to increase the stability of said positive image.

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

The invention accordingly comprises the several steps and the 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 invention, reference should be had to the following detailed description, taken in connection with the accompanying drawings, wherein:

Figure 1 is an exaggerated, sectional view of one form of the present invention;

Fig. 2 is an exaggerated, sectional view of another modification of the invention;

Fig. 3 is an exaggerated sectional view of still another form of the invention;

Fig. 4 is an exaggerated sectional view of another modification of the invention; and

Fig. 5 is an exaggerated sectional view of still another modification of the invention.

This invention relates generally to the process of treating a novel composite photographic film unit, containing several layers, which comprises introducing between one pair of said layers a liquid composition adapted to cooperate in the formation of a positive image in said film unit, and simultaneously or subsequently introducing between another pair of said layers another liquid composition capable of reacting with portions of said film unit. A preferred form of film unit embodying the present invention comprises a plurality of layers, one of said layers being a photosensitive layer. Said film unit also comprises a plurality of containers having therein liquid compositions, said containers being so positioned with respect to said layers as to be capable of releasing said liquid compositions within said film unit, said liquid compositions being capable of assisting in the performance of different operations in the creation of a final image in said film unit.

In such processes and products the several liquid compositions utilized may perform various

functions. One of the liquid compositions preferably develops a latent negative image and forms at least a part of the positive image. The other liquid composition or compositions may perform one or more of several functions such for example as an image-stabilizing operation, a background-forming operation, a light-barrier-forming operation, or an acidifying reaction.

A photographic product is also disclosed in my copending application Serial No. 662,000, filed April 13, 1946 (now Patent No. 2,584,029, issued January 29, 1952) and my copending application Serial No. 708,007, filed November 6, 1946, which product makes use of two rupturable containers each holding a liquid and wherein said liquids together contribute to the final characteristics imparted to a visible image formed during the processing of said product.

Referring now to Fig. 1, there is shown one form of the composite film unit of the present invention. This film generally comprises, in the preferred embodiment thereof, a photosensitive layer carried by an opaque base material and a transparent image-carrying layer, plus a transparent backing layer for the image-carrying layer. Two containers are associated with the film unit, one of said containers being positioned for introducing between the photosensitive layer and image-carrying layer a liquid composition containing at least a solvent for a developer for said photosensitive layer. The liquid preferably also contains the developer. The other container is positioned so as to introduce between said two transparent layers a liquid substance which will alter the transparency of the combination of the said two layers.

As illustrated, said film unit comprises a layer of photo-sensitive material 10 mounted on a base layer 12, an image-carrying layer 14 and a backing layer 16. Positioned on either side of said image-carrying layer are collapsible containers 18 and 20, holding respectively a liquid composition containing at least a solvent for a developer and a color-forming material such as a liquid suspension of a pigment or dye-forming material.

The photosensitive material 10 preferably comprises an emulsion of a noble metal halide such as a silver halide or of a mixture of silver halides, or of a mixed silver halide. However, the photosensitive material may comprise other suitable photosensitive materials such as dichromates, diazo compounds or ferric salts. The base layer 12, on which the photosensitive layer is mounted, is preferably made of an opaque substance such as baryta-coated paper, or of a plastic such as cellulose acetate dyed or backed with paper to make it light-impervious. The image-carrying layer 14 is preferably formed of a permeable, transparent material such as gelatin, polyhydroxy alkanies such as polyvinyl alcohol, sodium alginate, cellulose ethers, such as methyl cellulose, or their derivatives such as sodium carboxymethyl cellulose or hydroxy-ethyl cellulose. The backing layer 16 is preferably formed of a transparent plastic material such as a cellulose ester or a mixed ester, for example, cellulose acetate, cellulose nitrate, cellulose acetate propionate, or cellulose acetate butyrate. The image-carrying layer is preferably permeable to some of the liquids in the liquid composition, but is not so permeable as to allow said liquids to escape therethrough. Layer 16 may be made of the same substance as layer 14, or it may be made of another substance.

The liquid composition in the container 18 preferably has such a composition as to carry out the formation of a visible image in either layer as by the development of an image in the photosensitive layer or by the development of a negative image in the photosensitive layer and the production of a positive image on the image-carrying layer. Such latter reaction is preferred and is preferably accomplished by the transfer of image-forming components from the photosensitive layer to the image-carrying layer. For this purpose the liquid composition preferably comprises an aqueous solution of a developer such as hydroquinone, a film-forming substance such as sodium carboxymethyl cellulose, and a substance adapted to form from a latent photosensitive image a positive image-forming component. This latter substance, in a preferred form of the invention, is sodium thiosulfate. There may also be included in this liquid composition other substances such as a preservative and an alkali. The various materials carried in solution may be included within the film unit in solid form and the container may include only a solvent therefor.

The liquid composition in container 20 may comprise a liquid film-forming material and a pigment such as titanium dioxide, magnesium oxide, or magnesium carbonate, which will form between the image-carrying layer and the backing layer an opaque, white film or layer.

The liquid composition in container 20 may, however, comprise a material which will react with another material coated on either the lower surface of layer 14 or the upper surface of layer 16 to produce an opaque, white layer. The coating material may be a substance such as colloidal zinc hydroxide, while the reactive material carried by the container may be sodium carbonate. It is also contemplated in certain cases to have the liquid composition carried by container 20 comprising a dye, a dye coupler, or dye base, or an aqueous solution of a film-forming material carrying a dye. If the liquid carries only a portion of the dye, such as the coupler, it is necessary to incorporate the other portion of the dye in or upon the surface of one of the layers 14 and 16.

The elongated containers 18 and 20 are mounted preferably transversely of the film unit between layers 10 and 14, and layers 14 and 16, respectively. These containers are positioned preferably adjacent the leading or trailing edge of each frame of film, when a plurality of such containers is provided for a roll film. When a film unit is utilized having only one frame, only two containers are provided in the preferred embodiment, one for developing the image and creating a positive and the other for creating the opaque backing for the final image. The containers are preferably formed so that the application of a compressive force thereto will release the liquid in the direction of the exposed frame. This may be accomplished by forming the containers of a single sheet of oxygen and water-vapor impervious material such as wax-coated foil, wax-impregnated metal coated paper, or a metal foil coated with a resin, such as polyvinyl butyral, which is inert to alkalis. The sheet is folded over and filled with the liquid composition and the edges sealed by the application of heat. The seal is such that it will break before the folded edges will fracture, so that the liquid will be released from the side of the container having the seal. The seals at the end of the container are preferably formed so as to offer greater resistance to separation

than the longitudinal seal. There is thus obtained a water-vapor impervious container whose contents, for relatively long periods, will neither become dry nor oxidize. The edge seal is preferably formed by using ethyl cellulose such as by painting a strip thereof so as to get a peeling bond rather than a thermoplastic unification.

In the use of the invention as shown in Fig. 1, the photo-sensitive layer 10 is exposed to actinic light, as in a camera, the exposure being through the transparent layers 14 and 16 as shown by the arrow. The film unit is then run through pressure means such as a wringer, the end at which the containers 18 and 20 are positioned going first. As the film unit passes through the wringer, the containers are broken and their contents spread on either side of the image-carrying layer 14. The liquid composition spreads between the photosensitive layer 10 and the image-carrying layer 14, the developer in the liquid composition develops the latent image in the photosensitive layer, and the substance, such as sodium thiosulfate, forms, with the unexposed silver halide, positive image-forming complexes which are transferred from the photosensitive layer either to the film formed by the film-forming material in container 18 or to image-carrying layer 14 where a positive image of the subject matter of the latent image is formed by reaction of unused developer and the image-forming complexes. At the same time, the container 20 is broken and the liquid composition therein is spread between the image-carrying layer 14 and the backing layer 16, thus forming an opaque background for the positive print. After time has been allowed for the above-mentioned processes to take place, the base layer and the photosensitive layer are preferably stripped from the image-carrying layer to reveal the positive image.

In certain cases, it is desirable to introduce into a film unit at one time two liquids which must react with portions of said film at times spaced in relationship to each other. One means of doing this is to provide a film unit of the type shown in Fig. 2. In this film unit there are provided two containers adapted, upon the application of pressure thereto, to discharge their contents into a film unit at points spaced from each other. Between the points of entry of the two liquids there is provided a layer of controlled permeability so that one of said liquids is delayed in reaching its point of reaction by a time determined by the permeability of said layer.

Such is the case where a solarized photosensitive layer is used, and the positive image is formed in said layer, since it has been found helpful to substantially completely develop the latent image before the undevelopable (i. e. exposed) gains are dissolved. It is desirable, therefore, to provide means for retarding the action of the silver halide solvent such as sodium thiosulfate. This may be accomplished in a modification of the present invention as shown in Fig. 2, wherein 10a is a solarized photosensitive layer carried by a base layer 12a. A layer 26 of a slowly permeable substance is next provided. A liquid composition is included in a container 18a, between said layers, and another liquid composition is included in a container 20a, between the permeable layer 26 and a backing layer 16a. Said containers 18a and 20a are similar to the containers 18 and 20.

The various elements of the combination may be made of materials stated as being suitable for

the corresponding portions of the film units described in connection with the discussion of Fig. 1 above. As examples of suitable materials, the photosensitive layer 10a is preferably formed of a silver halide which has been solarized by pre-exposure to actinic light, by heat treatment, or by suitable chemical treatment. The base layer 12a is preferably a cellulosic film base such as cellulose acetate, and is preferably transparent. The liquid composition in the container 18a comprises a solvent for a developer and preferably includes the developer in solution. The liquid composition in container 18a also preferably comprises a film-forming material and a white pigment, the liquid being adapted to form an opaque white permeable film adjacent the photosensitive layer. The liquid composition in container 20a includes a solvent for a silver halide solvent such as sodium thiosulfate and preferably carries the silver halide solvent in solution. The slowly permeable layer 26 may be made of a substance such as a hardened gelatin whose degree of hardness or thickness is adjusted with respect to the speed of the developer so that the silver halide solvent permeates completely through said layer after the development of the solarized photosensitive layer has been substantially completed. Other suitable materials of controlled permeability may be used such as permeable organic plastic sheet materials. The backing layer 16a, in this modification is preferably formed of an impermeable material such as a plastic sheet.

When the film unit is processed, the photosensitive layer 10a is exposed to actinic light to create therein a latent image. There are several ways of accomplishing this exposure. It may be either through the base layer 12a or through the transparent layers 16a and 26; of the two ways, exposure through the base layer 12a is preferred, as shown by the arrow. The film unit is then subjected to mechanical stress such as by running it through a pair of pressure rollers, the container end of the film going first. The container 18a is broken, releasing the developer which is spread between layers 10 and 26, developing the solarized photosensitive layer 10, and also creating a permeable white background for the final image. At the same time, the container 20a is broken and the silver halide solvent is spread between layers 16a and 26. When the development is substantially completed, the silver halide solvent will have permeated through the slowly permeable layer 26 to dissolve out the undeveloped silver halide. The dissolved silver halide is precipitated in the permeable white film where it is substantially invisible. There is thus accomplished a time delay which permits the developer to develop the solarized photosensitive layer before the hypo dissolves out the undeveloped silver halide.

Another example of a photographic process wherein several reactions are desired in the same location, but spaced from each other with respect to time, is that involving the prevention of oxidation of a surplus developer in the neighborhood of the highlights of a positive image. In such cases, it has been found that such oxidation may be prevented, in a process of the type described in connection with the discussion of Fig. 1, by reducing the alkalinity of the highlights. In order to accomplish this result the embodiment shown in Fig. 2 is modified somewhat. In this modification, the photosensitive layer 10a is an ordinary photosensitive layer of

the type shown in Fig. 1. The liquid composition in container 18a preferably comprises a developer, a substance capable of creating image-forming components, such as sodium thiosulfate, an alkali such as sodium hydroxide, a preservative, a film-forming material and water. The liquid composition in container 20a comprises an acid such as maleic, citric, or hydrochloric acid, and preferably also includes an aqueous solution of a thickening or film-forming material to impart a high viscosity to the liquid composition and permit accurate spreading thereof.

A preferred embodiment of this feature of the invention comprises the use of a slowly permeable layer 26. This layer is preferably formed by casting a hydroxyethyl cellulose sheet .03 inch thick. This sheet is cast from a mixture of 200 grams of hydroxyethyl cellulose and 30 grams of lead acetate. The hydroxyethyl cellulose used is preferably Cellosize, WS100, manufactured by Carbide & Carbon Chemicals Corporation. This mixture is preferably heated to assist in dissolving the lead acetate. It is next cooled to remove air bubbles and then cast into a layer of desired thickness.

A preferred liquid composition for the container 20a comprises 100 grams of a 5 percent solution of sodium carboxymethyl cellulose containing .5 gram of citric acid.

A film unit of this type is processed in the same manner as described in connection with the film unit of Fig. 1. The photosensitive layer is exposed and the film unit run through a pair of pressure rollers. The positive image is formed in the same manner as described in connection with the first embodiment of Fig. 1. This positive image exists at least partially in the formed image-receiving layer carried by the image-carrying layer.

At the same time that the image-forming reaction is taking place, the acid is slowly permeating through the layer 26. By the time that the acid reaches the image-receiving layer between layers 10a and 26, the image-forming reaction is substantially complete. The acid then lowers the pH of the liquid between layers 10a and 26 to such a point that the excess developer cannot oxidize. The image-carrying layer having thereon the positive image may then be separated from the photosensitive layer and thus exposed to air. Due to the acid condition of the developer in solution, it cannot oxidize and it rapidly dries out to form a stable, finished image.

There is thus provided a photographic process where a highly concentrated, easily oxidizable developer is used and an excess amount of developer is employed, aerial oxidation being prevented, during the developing process, due to the fact that substantially all air is excluded from the region of the developer and the alkalinity of the developer is lowered below its oxidation point before the excess developer is exposed to aerial oxidation.

In some cases it is desirable to have a black backing for the entire film unit, in addition to the white pigment which is provided as a direct background for the image of the type discussed in connection with Fig. 1. It is desirable in some cases to form this black background after the exposure of the photosensitive layer, since it is preferred in many cases to expose the photosensitive layer through a transparent image-carrying layer. This black backing, together with the opaque base layer on which the photosen-

sitive layer is preferably mounted, makes the film unit completely light-impervious, so that it may be removed from the camera immediately after passing through the pressure rollers. In order to form this black backing, a modification of the invention as shown in Fig. 3 is provided. This modification of the invention is similar to the embodiment of the invention described in connection with Fig. 1, with like numbers corresponding to like parts thereof. As can be seen, a third container 22 having therein a black dye and another transparent backing or cover layer 24 have been added to the modification shown in Fig. 1.

In the preferred modification of the invention as shown in Fig. 3, the various elements thereof are formed of materials mentioned as being preferable in the discussion of Fig. 1. The layer 24 can be an organic plastic transparent film which preferably is substantive to the dye carried in a container 22.

In the use of the film unit of Fig. 3, the photosensitive layer 10 is exposed to actinic light preferably, as shown by the arrow, through the transparent layers 14, 16 and 24 to create in said layer 10 a latent image. The film unit is then processed by applying a mechanical stress thereto such as by passing it through a pair of pressure rollers, the container end going first. The pressure rollers release the liquid carried by the respective containers and the liquids are spread between the various layers. The developer-containing liquid composition is spread between layers 10 and 14, the pigment-carrying liquid is spread between layers 14 and 16, and the dye-carrying liquid is spread between layers 16 and 24. In the preferred form of the invention the developing liquid develops the photosensitive layer, creates image-forming components, and transfers these image-forming components to the stable film that is formed by the action of the film-forming material preferably included within container 18. Meanwhile, the pigment liquid forms an opaque white background for the positive image being formed on the image-carrying layer. The liquid dye forms an opaque black, light barrier behind the white background and the film can be ejected from a camera directly into daylight.

In some cases it is desirable to have in a film unit separate solutions of materials which cannot be maintained in the same solution without a deleterious reaction therebetween. In such cases, it is preferred to maintain a solution of one of the materials in one container, and to have a solution of the other material in another container. This condition arises in certain instances such as when it is desirable to use a film-forming material in a developer solution. As an example, such a film-forming material may be sodium carboxymethyl cellulose. The developer solution preferably also contains a substance such as sodium hydroxide and a developer such as hydroquinone. When a film-forming material, such as sodium carboxymethyl cellulose is used, it is desirable to form this film into a relatively insoluble, dimensionally stable film adjacent an image-carrying layer. To insolubilize this film-forming material it has been found that a lead salt such as lead acetate is particularly advantageous. In some instances it is desirable to carry the lead salt in solution so that it may be spread across the surface of the image-carrying layer after the liquid composition, containing the developer and sodium carboxymethyl cellulose, has been spread across the image-carrying

layer. In these cases, the lead salt cannot be carried in the same container with the sodium carboxymethyl cellulose or the sodium hydroxide, since it will react with these substances and form insoluble compounds therewith. Therefore, the lead salt is carried in a separate solution, which may be an aqueous solution of hydroxyethyl cellulose and in a container separate from the container having therein the developer, sodium carboxymethyl cellulose, and the sodium hydroxide. As an example of a film unit incorporating this modification of the invention, there is shown in Fig. 4 a film unit having two containers mounted in a position to discharge the contents thereof between a photosensitive layer and another layer. In a preferred modification of the invention the film unit comprises a photosensitive layer 10 which corresponds to the photosensitive layers of Figs. 1 and 3, a base layer 12 which may also correspond to the base layer 12 of Fig. 1, and an image-carrying layer 14 which may correspond to the image-carrying layer 14 of Fig. 1. Two containers 18 and 20b carry the developer liquid composition and the lead salt solution, respectively. The various elements of the film unit may be made of suitable materials as described previously.

In the use of the invention of Fig. 4, the film unit is exposed as shown by the arrow, preferably through the layer 14, and after exposure the film is processed by the application thereto of mechanical stress, such as by running the film unit through a pair of pressure rollers, the end of the film having therein container 18 going through first. The container 18 is ruptured by the pressure rollers, and the liquid composition contained therein is spread in a uniform film between the photosensitive layer 10 and the image-carrying layer 14. In this instance, the lead salt such as lead acetate is released by reversing the film unit end running it through the pressure rollers again, the end having therein the container 20b going first. The lead salt reacts with the film-forming material to create therewith an insoluble, stable film, and the other reactions mentioned in connection with the discussion of Fig. 1 occur in the same manner. The final positive image is created within and upon the film formed by the sodium carboxymethyl cellulose.

It is also desirable, in some cases, to have not only a time differential in release of the liquid compositions but also to have the release between different layers. Such a situation is desirable in those instances where it is preferred to have a liquid react with a formed positive image but wherein it is desired not to interfere with the image by spreading the liquid across the surface thereof. A film unit whereby the above may be accomplished is shown in Fig. 5. In this modification of the invention, where like numbers correspond to like numbers of Fig. 4, there is provided the usual base layer 12 having thereon a layer 10 of a suitable photosensitive material. There is also an image-carrying layer 14 preferably made of a transparent, permeable material such as gelatin and preferably having a coating of a lead salt on its upper surface. There is also included an additional backing layer 16. Two containers 18 and 20c are included; one at each end of the film unit. Container 18, between layers 10 and 14, preferably contains a liquid composition of the type mentioned previously and includes a developer, a film-forming material, etc. Container 20c, between layers 14 and 16,

preferably contains an aqueous solution of an acid such as citric acid which prevents oxidation of the developer remaining in the highlights and thus prevents staining of the highlights of the positive image.

In the use of the film unit of Fig. 5, the photosensitive layer 10 is exposed to actinic light, preferably through layers 16 and 14. The film unit is then processed by releasing the liquid composition from container 18 and spreading it between layers 10 and 14. As explained previously, the liquid composition from container 18 develops the latent negative image contained in the photosensitive layer and also forms a positive image of the subject matter of said latent image, the positive image being formed at least partially in the film created by the film-forming material. After a sufficient time for the formation of the positive image in the formed film, the container 20c is ruptured and the liquid therefrom is spread between layers 16 and 14 and permeates through layer 14 to stabilize the positive image. This stabilization is believed to be due to the capability of the above-mentioned acid in container 20c of lowering the pH of the liquid composition in the positive image, at least in the highlights thereof, to the point where oxidation of any excess developer cannot take place. It is also possible to form the layer 14 from a water-soluble linear polymer such as sodium carboxymethyl cellulose which has been cross-linked by lead to form a relatively insoluble material. In this case the layer 14 is reacted upon by the alkaline liquid composition from container 18 and the lead is apparently released in ionic condition. The sodium carboxymethyl cellulose in the liquid composition forms a unitary film with the sodium carboxymethyl cellulose in layer 14 and the positive image is formed in this unitary layer.

It should be understood that the embodiments of the invention shown in Figs. 1 through 5 may be in the form of individual film pack units or may compromise portions of a roll of film.

Since certain changes may be made in the above product and process and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A photographic product comprising a first liquid-confining layer including at least a photosensitive silver halide portion, a second liquid-confining layer, a rupturable container holding a liquid, said product having positioned therein photographic processing material, including a soluble silver halide developer, said developer being in an amount sufficient to develop a latent image in said photosensitive silver halide portion and being rendered effective to develop said photosensitive portion upon release of said liquid, said material being capable as a result of such development of causing differential disposition throughout the photosensitive portion of a substance for providing said second liquid-confining layer with a positive image by transfer, a third liquid-confining layer, and a second rupturable container holding a liquid, said two containers and said three liquid-confining layers being arranged so that said three liquid-confining layers may be superposed with said two containers positioned between different pairs of said liquid-confining layers, said first container being arranged

for releasing its contained liquid for spreading between said first two liquid-confining layers, said second container being arranged to release its contained liquid for spreading between said third liquid-confining layer and one of said first two liquid-confining layers, said second liquid, upon release and spreading, creating an effect supplementary to said image transfer.

2. A photographic product comprising a first liquid-confining layer including at least a photosensitive silver halide portion, a second liquid-confining layer, a rupturable container holding a liquid, said product having positioned therein photographic processing material, including a soluble silver halide developer and a silver halide solvent for developing exposed silver halide and providing said second liquid-confining layer with a positive image by transfer, a third liquid-confining layer, and a second rupturable container holding a liquid, said two containers and said three liquid-confining layers being arranged so that said three liquid-confining layers may be superposed with said two containers positioned between different pairs of said liquid-confining layers, said first container being arranged for releasing its contained liquid for spreading between said first two liquid-confining layers, said second container being arranged to release its contained liquid for spreading between said second and third liquid-confining layers, said second liquid, upon release and spreading, creating an effect supplementary to said image transfer.

3. The product of claim 2 wherein said second liquid includes an image-stabilizing material and said second liquid-confining layer is permeable to said second liquid.

4. The product of claim 2 wherein said second and third liquid-confining layers are transparent and said second liquid includes a material which is capable of forming a background for said positive image when spread between said second and third liquid-confining layers.

5. The product of claim 2 wherein said second and third liquid-confining layers are transparent and said second liquid includes a material which is capable of forming a light barrier when spread between said second and third liquid-confining layers.

6. The product of claim 2 wherein said second and third liquid-confining layers are transparent and said second liquid includes a pigment.

7. The product of claim 2 wherein said second and third liquid-confining layers are transparent and said second liquid includes a dye.

8. The product of claim 2 wherein said second and third liquid-confining layers are transparent, said second liquid includes a dye component and one of said second and third liquid-confining layers includes a material capable of reacting with said component to form a dye.

9. The product of claim 2 wherein said second liquid includes an acid and said second liquid-confining layer is slowly permeable to said second liquid.

10. The product of claim 18 wherein a relatively slowly permeable barrier layer is positioned between said two liquid-confining layers, said first container is positioned between said first liquid-confining layer and said barrier layer and said second container is positioned between said second liquid-confining layer and said barrier layer.

11. The product of claim 1 wherein a third rupturable container and a fourth liquid-confining layer are provided, said third container

being positioned between said third and fourth liquid-confining layers.

12. A photographic product comprising a rupturable container holding a liquid, a sheet support upon which said container is mounted, said sheet support providing a spreading surface having a liquid-receiving area adjacent said container onto which said liquid is spreadable directly from said container, said liquid-receiving area being greater than the area covered by said container, the liquid in the container being sufficient in amount to cover said liquid-receiving area, said product containing a reducing agent for developing the exposed portion of a photosensitive element having as its photosensitive material a heavy metal salt capable of forming a latent image upon photoexposure and capable of being developed by said reducing agent to produce a visible image comprising the metal of said salt, said reducing agent being in an amount sufficient to develop an image in an area of said photosensitive element equivalent to said liquid-receiving area, the container contents, when spread on said liquid-receiving area, placing said reducing agent in condition to effect the development, a second rupturable container holding a liquid, and a second sheet support providing a spreading surface having a liquid-receiving area substantially coextensive in area with said first liquid-receiving area, said two containers being positioned adjacent opposite surfaces of said first sheet support, said second container being positioned between said two sheet supports for release and spreading of its contained liquid between said two sheet supports, said second liquid creating, when spread, an effect supplementary to said image development and being in an amount sufficient to cover said second-mentioned liquid-receiving area.

13. A photographic product comprising a first liquid-confining layer, a photosensitive material capable of having a photographic record formed therein upon photoexposure and supported upon said first liquid-confining layer, a second liquid-confining layer, a first rupturable container holding a liquid, and a second rupturable container holding a liquid, said product containing a photographic reagent adapted to participate in transforming a photographic record in said photosensitive material to a picture image, said reagent being rendered effective for transforming said photographic record by liquid permeated into said photosensitive material from at least one of said containers, means holding said two liquid-confining layers together so that said liquid-confining layers may be superposed with said containers positioned therebetween for releasing their contained liquid for spreading between said liquid-confining layers upon rupture of said containers, each of said liquids contributing to the final characteristics of said picture image, and said photosensitive material comprising a salt of the class consisting of (a) the photosensitive ferric salts; (b) the photosensitive diazonium salts; (c) the photosensitive dichromates; and (d) heavy metal salts capable of forming a latent image upon photoexposure and capable of development to produce a visible image comprising the metal of said salt.

14. A photographic product as defined in claim 13 wherein said photosensitive material comprises a silver halide emulsion coated on said first liquid-confining layer.

15. A photographic product as defined in claim

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14 wherein said photographic reagent is a silver halide developer.

16. A photographic product as defined in claim 13 wherein another liquid-confining layer is positioned between said first and second liquid-confining layers to provide an intermediate layer therebetween and wherein said first container is located between said first and intermediate liquid-confining layers and said second container is located between said second and intermediate liquid-confining layers.

17. A photographic product comprising a first liquid-confining layer including at least a solarized silver halide portion, a second liquid-confining layer, a third liquid-confining layer, a first rupturable container holding a first liquid, a silver halide developer being included in said first liquid, and a second rupturable container holding a second liquid, a silver halide solvent being included in said second liquid, said two containers and said three liquid-confining layers being arranged so that the liquid-confining layers may be superposed with said first container positioned between said first and second liquid-confining layers and with said second container positioned between said second and third liquid-confining layers for releasing their contained liquids for spreading between the layers with which each respective container is associated, said second liquid-confining layer being slowly permeable to said second liquid and said liquids being rendered effective to transform an image in said solarized silver halide portion upon rupture of said containers and permeation of said liquids into said first liquid-confining layer, including said solarized silver halide portion.

18. A photographic product containing material, including a photographic reagent, for producing a transformation of an image in said product, said reagent being present in an amount sufficient to effect said transformation, said product comprising a first liquid-confining layer including at least a photosensitive silver halide portion, a second liquid-confining layer, a rupturable container holding a liquid, and a second rupturable container holding a liquid, said liquid in said two containers being in an amount sufficient for transforming said image in said photosensitive portion, said liquid, upon permeation of said photosensitive portion, rendering said transforming material effective to transform said image, said two containers and said two liquid-confining layers being arranged so that said two liquid-confining layers may be superposed with said two containers positioned between different portions of said liquid-confining layers for releasing their contents for spreading therebetween, each said container having a liquid-releasing mouth, one of said containers being positioned at a location adjacent one edge of said photosensitive portion and the other of said containers being positioned at a location adjacent the opposite edge of said photosensitive portion, the mouths of said containers facing each other, each of said liquids being effective to contribute to the final characteristics of the image produced by said transformation.

19. A photographic product comprising a first sheet support, a second sheet support arranged in superposed relation thereto, a first rupturable container mounted on the side of said first sheet support which is furthest removed from the second support, said first container holding a liquid, the contents of said first container including a silver halide developer, and a second rupturable container holding a liquid, said second container

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being mounted on said second support and between said two supports, each said support having a spreading surface providing a liquid-receiving area which extends from the container mounted thereon and over which liquid is adapted to be spread upon rupture of said container, said liquid-receiving areas being substantially similar and the liquid in each container being sufficient in amount to cover the liquid-receiving area with which said container is associated and to provide a continuous film of liquid thereon, said silver halide developer being in an amount sufficient to develop a latent image in a silver halide photosensitive stratum equivalent in area to a liquid-receiving area, each said liquid upon its release being adapted to cooperate with the other liquid to impart the final characteristics to the image resulting from silver halide development.

20. A photographic product as defined in claim 19 wherein the liquid in said second container includes a silver halide solvent.

21. A photographic product for carrying out a photographic process resulting in the formation of a visible image and comprising a sheet support, a first rupturable container holding a liquid, and a second rupturable container holding a liquid, each said container having a liquid-releasing mouth, each said container being mounted on the same side of said support and extending transversely thereof, said support being provided with a surface area on said side having said containers thereon and which is adapted to receive the liquid contents of the containers upon rupture thereof and the spreading of liquid released therefrom, said containers also being positioned on said sheet support to have their respective liquid-releasing mouths each facing an edge of said surface area for dispensing the liquid contents of the containers for spreading over said surface area and each container holding liquid in an amount sufficient to cover said surface area, said product containing a reducing agent for developing the exposed portion of a photosensitive element having as its photosensitive material a heavy metal salt capable of forming a latent image upon photoexposure and capable of being developed by said reducing agent to produce a visible image comprising the metal of said salt, said reducing agent being in an amount sufficient to develop an image in an area of said photosensitive element equivalent to said liquid-receiving area, the contents of one of said containers, when spread on said surface area, placing said reducing agent in condition to effect the development, the liquid in said second container creating, when spread, an effect supplementary to said image development.

22. A photographic product comprising a rupturable container holding a liquid, a sheet support upon which said container is mounted, said sheet support providing a spreading surface having a liquid-receiving area adjacent said container onto which said liquid is spreadable directly from said container, said liquid-receiving area being greater than the area covered by said container, the liquid in the container being sufficient in amount to cover said liquid-receiving area, said product containing at least one photographic processing agent from the class consisting of the silver halide developers and the silver halide fixing solvents, said processing agent being in an amount sufficient to process an image in an area of a photosensitive, silver halide element equivalent to said liquid-receiving area, the con-

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tainer contents, when spread on said liquid-receiving area; placing said processing agent in condition to effect the processing of said element, a second rupturable container holding a liquid, and a second sheet support providing a spreading surface having a liquid-receiving area, substantially coextensive in area with said first liquid-receiving area, said two containers being positioned adjacent opposite surfaces of said first sheet support, said second container being positioned between said two sheet supports for release and spreading of its contained liquid between said two sheet supports, said second liquid creating, when spread, an effect supplementary to said image processing and being in an amount sufficient to cover said second-mentioned liquid-receiving area.

23. A photographic product for carrying out a photographic process resulting in the formation of a visible image and comprising a sheet support, a first rupturable container holding a liquid, and a second rupturable container holding a liquid, each said container having a liquid-releasing mouth, each said container being mounted on the same side of said support and extending transversely thereof, said support being provided with a surface area on said side having said containers thereon and which is adapted to receive the liquid contents of the containers upon rupture thereof and the spreading of liquid released therefrom, said containers also being positioned on said sheet support to have their respective liquid-releasing mouths each facing an edge of said surface area for dispensing the liquid contents of the containers for spreading over said surface area and each container holding liquid in an amount sufficient to cover said surface area, said

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product containing at least one photographic processing agent from the class consisting of the silver halide developers and the silver halide fixing solvents, said processing agent being in an amount sufficient to process an image in an area of a photosensitive, silver halide element equivalent to said surface area, the contents of one of said containers, when spread on said surface area, placing said processing agent in condition to effect the processing of said element, the liquid in said second container creating, when spread, an effect supplementary to said image development.

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