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PROCESS OF RETOUCHING PHOTOGRAPHIC FILMS OR PLATES

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Fig. 1

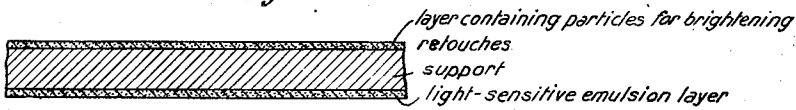


Fig. 2

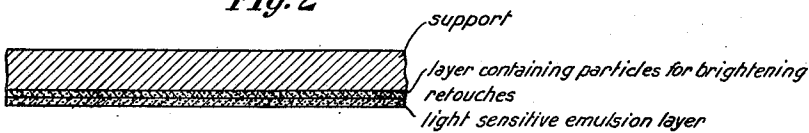
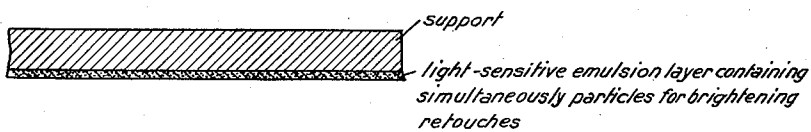


Fig. 3



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PROCESS OF RETOUCHING PHOTOGRAPHIC FILMS OR PLATES

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6 Claims. (Cl. 95—5)

My present invention relates to retouching of photographic materials. One of its objects is to provide a colored or turbid layer which allows to effect brightening retouches. Further objects will be seen from the detailed specification following hereafter.

I have found that the light-sensitive photographic material is rendered fit for receiving brightening retouches by imparting to the emulsion layer, or the support or a special intermediate or back layer a coloration or turbidity which is not affected by the photographic baths. The colored or turbid layer may moreover be dulled in known manner by addition of pigments so that also the hitherto known darkening retouches may be made. The material causing the coloration or turbidity must be insoluble in the usual photographic baths, and therefore the coloration or turbidity will still be present after development and fixing of the photographic material. The coloration or turbidity remain unaltered until a brightening retouch is necessary. In this case the material causing the coloration or turbidity will wholly or partly be removed by a treatment with a suitable liquid. So I may use, for instance, organic dyestuffs, such as Benzollichtgelb R L (cf. Fierz-David "Künstliche organische Farbstoffe" 1926, page 168) or Guinea green 2 G (cf. Schulz Farbstofftabellen 7. Auflage (A) 762), or pigments such as ferric hydroxide or calcium oxalate. In order to realize the retouches suitable solvents or bleaching solutions for these materials are used. In the case of Benzollichtgelb R L an acid hydrosulfite solution may be employed, in the case of Guinea green 2 G decoloration may be effected with a dilute solution of caustic alkalis whereas the action of dilute acid on the layer decolored in this manner reproduces the color. If the layer enabling retouching contains ferric hydroxide brightening may be effected with a solution of oxalic acid, and if the layer contains calcium oxalate brightening may be effected with dilute hydrochloric acid. For producing a turbid layer I may use, for instance, resins; retouching is effected by dissolving out these products with suitable solvents. If the layer contains mastic, alcohol is a suitable solvent.

I give the following examples of carrying out my invention but without intending to limit it thereto.

Example 1.—50 grams of freshly precipitated ferric hydroxide are mixed in a colloid mill with 1000 ccm. of a gelatine solution of 70 per cent

strength. This mixture is applied to a support in the usual manner.

For brightening a 5 per cent solution of oxalic acid is used. The particles of ferric hydroxide should not be too small in size, a diameter of about 0.1–1 μ gives satisfactory results. If, for instance, the ferric hydroxide is produced in the gelatine by precipitation, the ferric hydroxide is on account of its high grade of dispersity too less resistant to the fixing bath.

Example 2.—1000 ccm. of a gelatine solution of 7 per cent strength are mixed with 20 ccm. of a solution of 10 per cent strength of Benzollichtgelb R L (cf. Fierz-David "Künstliche organische Farbstoffe" 1926, page 168) in water. Hereon 12 ccm. of a normal solution of barium chloride is added by dropping whereat the insoluble barium salt of the dyestuff is formed.

For brightening a solution of sodium hydrosulfite is used, a few drops of glacial acetic acid being added immediately before use.

Example 3.—100 grams of gelatine and 8.4 grams of calcium chloride are dissolved in 100 ccm. of water. To this solution there is added a solution of 10 grams of ammonium oxalate in 200 ccm. of water at 40° C. while stirring.

The mixture forms after washing with water and casting an emulsion layer enabling retouching. The turbidity can be removed by hydrochloric acid of 2 per cent strength.

Example 4.—To 1000 ccm. of a gelatine solution of 10 per cent strength there are slowly added 200 ccm. of a solution of mastic in alcohol of 20 per cent strength while stirring. After drying the emulsion forms a dull layer of gelatine containing small drops of mastic. This layer allows both darkening retouches with graphite or the like material, and brightening retouches by removing the resin with alcohol.

The invention is illustrated in the accompanying drawing in which Figs. 1 to 3 show sections through photographic materials, according to this invention on an enlarged scale.

Fig. 1 shows a photographic material having a layer containing small particles and being capable of brightening retouches arranged on the rear side.

Fig. 2 shows a photographic material having a layer containing small particles and being capable of brightening retouches arranged between the support and the light sensitive emulsion layer.

Fig. 3 shows a photographic material having the material enabling brightening retouches incorporated in the light sensitive emulsion layer.

I do not wish to limit my invention to the fore-

going examples nor to the specific details given therein. Numerous other embodiments are possible and I contemplate as included within my invention all such modifications and equivalents as fall within the scope of the appended claims. As a rule the concentration of the material allowing brightening retouches should never be so high as to impair copying of the negative. Besides the coloring or darkening compounds mentioned above a great number of other azo dyes and organic or inorganic pigments is suited for the purpose in question. The chemical qualities of such compounds i. e. their fastness against the action of the photographic baths and their capability of being rendered colorless or being removed from the binding agent are well known to every chemist skilled in the art and a few simple comparative experiments should be made in order to determine the best kind of color and the best reagent or solvent to be used for brightening effects.

What I claim is:—

1. A process of applying brightening retouches to a photographic material which comprises finely distributing in a light sensitive layer of said photographic material a compound resisting the photographic baths and diminishing the transparency to light of said layer, and partly clearing said layer by a chemical reagent in conformity with parts of a picture produced in said layer that shall receive a greater transparency.

2. A process of applying brightening retouches to a photographic material which comprises fine-

ly distributing in a light sensitive layer of said photographic material a compound selected from the group consisting of inorganic and organic pigments resisting the photographic treating baths, and partly clearing said layer by a chemical reagent in conformity with parts of a picture produced in said layer that shall receive a greater transparency.

3. A process of applying brightening retouches to a photographic material which comprises finely distributing in a light sensitive layer of said photographic material an azo dye resisting the photographic treating baths, and partly clearing said layer by a chemical reagent in conformity with parts of a picture produced in said layer that shall receive a greater transparency.

4. A process of applying brightening retouches to a photographic material which comprises finely distributing in a layer of said photographic material ferric hydroxide and partly clearing said layer with a solution of oxalic acid of 5 per cent strength.

5. A process of applying brightening retouches to a photographic material which comprises finely distributing in a layer of said photographic material Benzolichtgelb R L, and partly clearing said layer with a solution of sodium hydrosulfite.

6. A process of applying brightening retouches to a photographic material which comprises finely distributing in a layer of said photographic material mastic, and partly clearing said layer with alcohol.

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