

UNITED STATES PATENT OFFICE

2,267,953

PHOTOGRAPHIC PRINTING PAPER

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No Drawing. Application April 25, 1940,
Serial No. 331,533

2 Claims. (Cl. 95—8)

This application relates in general to photographic printing paper and is concerned primarily with photographic printing paper having a coating containing a palladium salt.

This application is a continuation in part of my application Serial No. 234,367, filed October 11, 1938.

It is one object of my invention to provide photographic printing paper whereby rich and warm black tones can be obtained and which permits the artist or photographer to correct or modify a finished print, for example by increasing high lights, simply by brushing the proper spots with dilute hydrochloric acid.

It is a further object of my invention to provide a photographic paper of the type described which shall be durable and less expensive than platinum papers.

I have discovered that an excellent photographic printing paper having all the above stated advantages, characteristics and results can be produced by sensitizing the paper or other supporting medium, such as silk, linen, cotton or other fabric which will absorb moisture but will not disintegrate in water, with a coating including palladium from a solution containing sodium chloropalladite.

In preparing such palladium printing paper I mix an aqueous solution of sodium chloropalladite with a light sensitive organic salt, for instance a light sensitive organic salt of a metal of the group consisting of iron, manganese and uranium, and particularly an organic ferric salt such as ferric oxalate or alkali ferric oxalate, ferric citrate or ferric tartrate. The mixture is spread on the medium. The medium with the coating of said mixture is then dried and exposed under the photographic negative to make a print in the usual way, after which the print is developed in a proper developer, for example, potassium oxalate or the like.

In a specific example of the method of sensitizing printing media according to my invention I prepare a sensitizing solution consisting of two (2) ounces water, sixteen (16) grains oxalic acid, and two hundred forty (240) grains ferric oxalate, a palladium salt solution consisting of two (2) ounces three (3) drams water and two hundred nineteen (219) grains sodium chloropalladite, and a further solution consisting of two (2) ounces water, sixteen (16) grains oxalic acid, two hundred forty (240) grains ferric oxalate and four (4) grains potassium chlorate. In preparing a printing sheet of 8" x 10" paper I spread over the paper a mixture of about fourteen (14)

drops of the sensitizing solution, about twenty-four (24) drops of the palladium salt solution, and about eight (8) drops of the solution containing potassium chlorate, such spreading being done by a brush or other means, and continuing until the surface of the paper is covered uniformly but is still moist, whereafter the paper is permitted to dry in a dark room.

If necessary the paper or fabric will be sized before applying the sensitizing coatings.

For developing the print, I preferably use a solution comprising about forty-eight (48) ounces of hot water and one (1) pound of potassium oxalate. The warmth of tones may be increased by warming the developer.

A suitable clearing bath consists of sixty (60) ounces of water and about one (1) ounce of c. p. hydrochloric acid.

The ferric oxalate when exposed to light is reduced to ferrous oxalate which in turn reacts with the sodium chloropalladite reducing the salt to metallic palladium, the non-reduced palladium salt ultimately being washed out. The potassium chlorate may be added in order to increase contrasts and is, as its quantity is extremely small, conveniently made up in solution with ferric oxalate.

Palladium printing paper is best produced with sodium chloropalladite which salt is for instance considerably more soluble than the potassium chloropalladite, the upper limit of solubility in water of the sodium chloropalladite being 100 grams in 100 cc. whereas the upper limit of solubility in water of the potassium chloropalladite is only slightly more than 13 grams in 100 cc.

My invention contemplates in particular the provision of photographic palladium paper sensitized as heretofore described and containing substantially on its surface and in uniform distribution sodium chloropalladite in a concentration of from 0.002 gram per square inch surface to 0.060 gram per square inch surface, the preferred concentration being about 0.0025 gram to 0.0040 gram per square inch surface, such as 0.0027 gram per square inch surface in the case of paper.

The invention enables the production of prints having exceptionally warm black tones; the prints are durable and cost much less than prints on platinum papers. Moreover, a finished print can be corrected or modified easily and quickly, as by increasing high lights, by touching the proper spots with a brush or the like soaked in dilute hydrochloric acid, part of the palladium deposit on the paper being thereby dissolved, or

by resensitizing and reprinting the whole or parts of the print as often as necessary to bring out desired effects.

In the appended claims the term "paper" is intended to include paper or other supporting media, such as silk, linen, cotton or other fabrics, which will absorb moisture but will not disintegrate in water, and is intended to be generic for all suitable photographic printing media.

Having thus described my invention, what I claim is:

1. Photographic printing paper having a sen-

sitizing coating comprising a mixture of a light sensitive organic salt and sodium chloropalladite in a concentration of from 0.002 gram per square inch surface to 0.060 gram per square inch surface.

2. Photographic printing paper having a sensitizing coating comprising a mixture of a light sensitive organic salt and sodium chloropalladite in a concentration of from 0.0025 gram per square inch surface to 0.004 gram per square inch surface.

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