

UNITED STATES PATENT OFFICE.

EMIL PAUL SCHOENFELDER AND EMIL KEHLE, OF NEWARK, NEW JERSEY.

SELF-TONING SENSITIVE PHOTOGRAPHIC PAPER.

SPECIFICATION forming part of Letters Patent No. 560,755, dated May 26, 1896.

Application filed August 9, 1895. Serial No. 558,783. (No specimens.)

To all whom it may concern:

Be it known that we, EMIL PAUL SCHOENFELDER and EMIL KEHLE, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in a Composition of Matter to be Used for Photographic Purposes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of our invention is to provide a chemical composition to be used for preparing suitable surfaces—such as paper, especially glazed paper, porcelain, &c.—for photographic purposes, to thus render said surfaces self-toning during the process of printing the picture from a negative, and to thus avoid the subjecting of the printed picture to a toning or a combined fixing and toning bath.

Our composition consists of the following ingredients, combined in the proportions stated, and which we will call "stock" or "ground" solutions, viz:

Stock solution A, (collodion:) pyroxylin, three hundred grains; ether, (*United States Pharmacopæia*, 1880,) one pound; absolute alcohol, one pound.

Stock solution B: gold chlorid, (Anthony's preferred,) fifteen grains, dissolved in alcohol, (forty per cent.,) one and one-half ounces.

One and one-half ounces of stock solution A is thoroughly mixed with ten drops of stock solution B and the following ingredients are added in the proportions stated, viz: (a) citric acid, three grains, which is dissolved before mixing with the other ingredients in alcohol, three drops; (b) silver nitrate, fifteen grains, first dissolved in alcohol, (forty per cent.,) fifty drops; (c) strontium chlorid, one and one-half grains, dissolved before mixing with the other ingredients in alcohol, (forty per cent.,) three drops, and (d) pure castor-oil, two drops.

The above emulsion is applied to the surface of the material on which the picture or photo is to be printed, and before using the said surface must be thoroughly dried. After the print is made it is given a bath in a solution of sodium hyposulfite, one part to fifteen parts of water, in which bath it remains until all superfluous chemicals have been removed from the picture, (about five minutes,) when it is taken out and thoroughly washed

in clean water. The picture is then ready for mounting and does not require any additional toning, as the toning has been accomplished simultaneously with the printing, (and not with the fixing or washing,) and it has a superior finish that will not fade or turn yellow by being exposed to light.

In place of stock solution A a solution composed of gelatin, one part, to water, three parts, may be used, in which case the ingredients mentioned under (a), (b), and (c) are dissolved in water instead of alcohol.

We do not wish to be understood as limiting ourselves to the exact proportions and ingredients given, as various changes may be made without departing from the spirit of our invention. Other acids and other chlorids may be used, so as to render the surface self-toning during the process of printing.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A chemical composition to be used for preparing the surface of suitable material for photographic printing, to thus render the said surfaces self-toning during the process of printing consisting of gold chlorid, silver nitrate, a holding substance, and an organic acid, such as citric acid, substantially as described.

2. A chemical composition to be used for preparing the surface of suitable material for photographic printing, to thus render said surface self-toning during the process of printing, and consisting of gold chlorid, silver nitrate, a holding substance, such as collodion, an organic acid, such as citric acid, and castor-oil, substantially as described.

3. A chemical composition to be used for preparing the surface of suitable material for photographic printing, to thus render the surface self-toning during the process of printing, consisting of a holding substance, such as collodion, a gold salt, silver nitrate, a chlorid, such as strontium chlorid, a softening ingredient, such as castor-oil, and an organic acid, such as citric acid, substantially as described.

In testimony that we claim the invention set forth above we have hereunto set our hands this 19th day of July, 1895.

EMIL PAUL SCHOENFELDER.
EMIL KEHLE.

Witnesses:

OSCAR A. MICHEL,
FREDK. OSTEN-SACKEN.