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UNITED STATES PATENT OFFICE.

GEORGE WELLINGTON MILES, OF SANDWICH, MASSACHUSETTS, ASSIGNOR TO AMERICAN CELLULOSE AND CHEMICAL MANUFACTURING COMPANY, LTD., OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

LIGHT-SENSITIVE COMPOSITION.

No Drawing. Application filed February 19, 1921. Serial No. 446,506.

To all whom it may concern:

Be it known that I, GEORGE WELLINGTON MILES, a citizen of the United States of America, and resident of Sandwich, in the county of Barnstable and State of Massachusetts, have invented new and useful Improvements in Light-Sensitive Compositions, of which the following is a specification.

My invention relates to the composition of solutions for making blue-prints and similar photographic impressions and has for its object the production of a light-sensitive solution or composition which shall react more quickly to light than has been the case with similar solutions heretofore; in other words, my object is to accelerate the production of blue print and similar photographic impressions.

A characteristic example of the light-sensitive solutions or compositions to which my invention is applicable, is that which is made by dissolving, while protected from all light except that of the red end of the spectrum, ferric ammonium oxalate and ferric ammonium citrate, in water, and adding the solution thus formed to a solution of potassium ferricyanide in water. More specifically, the solutions may be:

Ferric ammonium oxalate	431 gms.
Ferric ammonium citrate	227 gms.
Water	3028 cc.

and

Potassium ferricyanide	118 gms.
Water	453 cc.

Paper coated or saturated with the foregoing solution will produce a satisfactory blue print after exposure to strong light for about thirty seconds.

To a solution such as above described I add a small quantity of vanadium in the form of an oxygen compound; the higher oxids of vanadium I have found to be effective; for instance vanadium pentoxid (V_2O_5). When this oxide (or anhydride of vanadic acid) is employed, it should be finely powdered. One gram of vanadium pentoxid to each four and one-half liters of the blue-print solution above described, will suffice to produce the desired acceleration of printing photographically. The solution should be shaken or stirred occasionally until the vanadium salt is dissolved.

Paper coated with the blue print solution qualified by a small proportion of vanadium oxide, as above specified, will produce a satisfactory blue print after exposure to strong light for about eight seconds.

The essential condition, characteristic of my invention, is the presence of an oxygen compound of vanadium, distributed over the paper or other material in association with the printing solution which is the light sensitive compound. While the specific mode of effecting this distribution, above described, is believed to be the most effective and convenient, other modes may accomplish the result; for instance a paper may be uniformly coated or saturated with a vanadium solution, or with vanadium in collodial suspension, and afterward coated or saturated with the light-sensitive compound.

What I claim and desire to secure by Letters Patent is:

1. A light-sensitive composition characterized by a distributed content of an oxygen compound of vanadium.

2. A light-sensitive composition characterized by a distributed content of a vanadium oxid.

3. A light-sensitive composition characterized by a distributed content of vanadium pentoxid.

4. A light-sensitive solution, comprising ferric ammonium oxalate and citrate, and potassium ferricyanide, with a distributed content of an oxygen compound of vanadium.

5. A light-sensitive solution, comprising ferric ammonium oxalate and citrate, and potassium ferricyanide, with a distributed content of a vanadium oxid.

6. A light-sensitive solution, comprising ferric ammonium oxalate and citrate, and potassium ferricyanide, with a distributed content of a vanadium pentoxid.

7. The method of accelerating the production of photographic impressions upon light sensitive compositions, which consists in subjecting the said composition to the action of light in the presence of an oxygen compound of vanadium.

8. The method of accelerating the production of photographic impressions upon light sensitive compositions, which consists in subjecting the said composition to the action of light in the presence of a vanadium oxid.

9. The method of accelerating the production of photographic impressions upon light sensitive compositions, which consists in subjecting the said composition to the action of light in the presence of vanadium pentoxid.

Signed by me at Boston, Massachusetts, this 17th day of February, 1921.

GEORGE WELLINGTON MILES.