

UNITED STATES PATENT OFFICE.

PROSPER MARIE CONSTANT GRENIER-VILLERD, OF PARIS, FRANCE,
ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HENRY E.
HOWLAND, OF NEW YORK, N. Y.

PROCESS OF COLORING PHOTOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 658,257, dated September 18, 1900.

Application filed May 12, 1899. Renewed March 6, 1900. Serial No. 7,595. (No specimens.)

To all whom it may concern:

Be it known that I, PROSPER MARIE CONSTANT GRENIER-VILLERD, a citizen of the French Republic, and a resident of Paris, France, now sojourning in the United States at the city of New York, State of New York, have invented certain new and useful Improvements in Processes of Making Colored Photographs, of which the following is a description.

The invention is especially suitable for photographs on silk and on tapestry, though its range of applicability is not limited to any such materials.

The photograph produced by this process may exist independently of the particular process by which I produce it. Therefore the photograph forms the subject-matter of my copending application, Serial No. 20,906, filed June 19, 1900, and is not the subject of this present specification.

By first explaining the process of production the nature of the article produced will be also made clear.

Supposing that a portrait or other picture or design has been photographed on silk and that after printing it on the silk the picture has been fixed by means of a thiosulfate-bath and thoroughly washed, so as to free the fibers of the silk from all traces of the thiosulfate, I then take a solution of alum, using, say, one part of alum to sixteen parts water, by weight, and while the silk is still wet I lay it with the unprinted face downward on the surface of the alum solution without letting the alum solution flow onto or over the printed face of the silk. In ten or fifteen seconds I take the printed silk out of the solution and let it drip and then dry it. As a result of this the fabric will have become impregnated with the alum. The evaporation of the water leaves the impregnating alum in the fabric. The fabric so prepared is ready to receive colors, which are applied by brush, as desired, using water-colors. The best colors to use are permanent colors, but analine colors give very beautiful effects, especially for flowers.

Alum may also be added to the colors before they are applied. The object and effect of the alum is twofold. It prevents the colors from running or blurring, renders them more intense, and in doing so makes them practically waterproof, though I do not mean to say that they will withstand rubbing or abuse while wet. The picture after being so colored may be protected also by coating it with pegamoid or other protecting and transparent material.

In applying the process to heavier fabrics, such as tapestry, it is better to let the alum-bath cover both the printed and unprinted sides of the fabric.

While I have now described the best way of carrying out the process, I do not wish to imply that the details as set forth are not subject to great modification. I wish, of course, to distinguish widely between my process and the known use of alum for hardening gelatin and other films and negatives, this latter being an entirely-different matter and having an entirely-different purpose and result.

I claim as the novel and characteristic features of my invention the following:

1. The process of making photographs in colors which consists in first applying a solution of alum to the previously photographically printed fabric, then drying without washing out the alum, and then coloring the photograph as required.

2. The process of making photographs in colors which consists in photographically printing and then fixing and washing the photograph upon suitable fabric, and thereafter impregnating the fabric with a solution of alum, and subsequently applying the colors.

3. The process of making photographs in colors which consists in first producing upon fabric a photograph without colors, then applying alum to the back of the fabric and drying on the alum, and subsequently applying the colors to the printed face of the fabric, substantially as set forth.

4. The process of making photographs in

colors, which consists in first producing upon
woven fabric a photographic print, then ap-
plying alum and incorporating it in the woven
fabric and drying, and subsequently apply-
5 ing the colors to the face of the fabric in con-
tradistinction to coloring a gelatin or other
film, substantially as set forth.

Signed this 9th day of May, 1899, at the city
of New York, N. Y.

PROSPER MARIE CONSTANT GRENIER-VILLERD.

Witnesses:

GEORGE H. SONNEBORN,
HAROLD BINNEY.