

UNITED STATES PATENT OFFICE.

REDFIELD B. WEST, OF GUILFORD, CONNECTICUT.

METHOD OF PREPARING PAPER FOR PHOTOGRAPHIC PRINTING.

SPECIFICATION forming part of Letters Patent No. 341,083, dated May 4, 1886.

Application filed June 1, 1885. Serial No. 167,290. (No specimens.)

To all whom it may concern:

Be it known that I, REDFIELD B. WEST, of Guilford, in the county of New Haven and State of Connecticut, have invented a new Improvement in the Preparation of Paper for Photographic Printing; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to an improvement in the preparation of paper for printing photographs, the paper being specially adapted to photographic printing under the process for which Letters Patent No. 273,206 were granted to me February 27, 1883, parts of the invention, however, being applicable to other processes of printing; and the invention consists in coating both sides of the paper with a preparation of starch, as hereinafter more fully described.

The paper to which my preparation is best adapted is that known in the market as "B. F. K. Rieves, No. 74."

The bath in which the paper is to be coated is prepared after the following formula: Potato starch, six ounces; glycerine, two ounces; sodium citrate, (nearly but not quite neutral,) one-fourth ounce; pure water, two hundred and twenty ounces.

To prepare the bath, take, say, one-tenth of the water, boil it to expel the air, then cool. In this mix the starch, glycerine, and citrate. Heat the remainder of the water until it boils. Then remove from the fire and immediately add the ingredients so previously mixed with the first portion of water. Care should be taken that there be no lumps in the mixture with the first portion of water, but that it be perfectly smooth. If the mixture is to be kept for a considerable length of time before use, it should be brought to a temperature a little above blood-heat—say 105° Fahrenheit—and this is the best temperature at which to dip the paper; but before the paper is dipped the bath should be filtered through fine muslin, and so as to avoid air-bubbles in the bath. The bath warmed to about blood heat should be arranged where there is a good light in order to observe the operation.

The paper is best applied by holding the sheet perpendicularly over the bath, letting one edge fall upon the surface face downward.

Then carefully and by degrees bring the paper onto the surface; but this must be done so slowly and evenly that no air can come between the surface of the bath and the paper. This is best done by employing a glass bar or other suitable device which is straight upon its edge, to be drawn over the back of the paper as the paper is permitted to fall upon the surface of the bath, so that such movement of the bar over the back of the paper will force the air forward and prevent bubbles forming beneath the paper. This depression should be such as to surely take the entire surface of the paper upon the bath, and to insure this the pressure may be such as to carry the paper slightly below the plane of the surface of the bath, but not so low as to permit the fluid to flow over the upper surface. After the one surface has been thus presented to the bath and completely coated, the sheet is at once removed and inverted, presenting the other side, which is allowed to float for a few seconds on the surface, and then the paper, thus having both sides coated with the composition of the bath, is suspended and dried, and for the best results the drying should be rapid.

It is disadvantageous to permit the bath of starch composition to cool and be rewarmmed, as this is liable to produce a rough or streaky paper. In some cases I have found that the starch shows a tendency to run down in streaks when applied to the paper. This is caused either by drying too slowly or by impurities in the bath or paper, or possibly by the composition of the bath being too thin. This tendency is obviated or reduced by the addition of citric acid in solution and in small quantities. The paper is thus coated with the starch composition upon both surfaces.

The preparation for printing may be that in accordance with my previous patent or otherwise; but after printing the prints are mounted by moistening the starched surface of the back, and then applying it directly upon the board.

Under my process of printing the print is ready to mount as soon as it comes from the bath, it not requiring to be dried, as in common photographic printing; hence it may be taken from the washing operation and immediately mounted.

The starch coating has a strong adhesive quality, and attaches the paper permanently to the card. The glycerine makes the paper more flexible when dry than it otherwise would be. The sodium citrate makes the starch more homogeneous, and improves the whites of the pictures.

Paper thus prepared avoids the application of dextrine or other adhesive gums to the back of the paper after printing, and thereby overcomes difficulties too well known to require particular description.

The proportion of the ingredients to form the bath may be varied to some extent; but I

believe the proportions named will produce the best results.

I claim—

The herein-described improvement in the preparation of paper for photographic printing, consisting in subjecting both surfaces of the paper to a bath composed of starch, glycerine, sodium citrate, and water, in the proportions substantially as described.

REDFIELD B. WEST.

Witnesses:

CHRISTOPHER SPENCER,
FRED C. SPENCER,