UNITED STATES PATENT OFFICE.

DOUGLAS F. FRINK, OF NEW YORK, N. Y.

IMPROVEMENT IN THE PROCESS OF COLORING PHOTOGRAPHIC PICTURES.

Specification forming part of Letters Patent No. **209,880**, dated November 12, 1878; application filed July 22, 1878.

To all whom it may concern:

Be it known that I, DOUGLAS F. FRINK, of the city, county, and State of New York, have invented certain Improvements in the Art of Mounting and Coloring Photographs on Glass, of which the following is a specification:

The art or process of mounting photographs on glass and of coloring the same has heretofore been conducted generally as follows: An ordinary card-photograph—say a portrait—is first soaked off the card, or unmounted, and then pasted with ordinary flour or starch paste, face downward, on a glass plate, usually concavo-convex, the picture being mounted on the concave face. When dry the photographic paper is ground down thin on the back by means of sand-paper or other suitable abrasive material, so as to make it somewhat translucent. It is then treated with Canada balsam, sweet-oil, or paraffine, to render it still more translucent. The eyes, jewelry, and other parts requiring brilliant color are then usually painted with water-color directly upon the back of the paper, and the flesh and other parts are tinted by painting with oil colors upon another glass plate arranged behind the picture. This gives a softened and delicate effect to the coloring of the picture.

This method, although producing pictures of great delicacy and beauty, is defective in that the paste used to affix the picture to the glass frequently decomposes, so that the photograph is apt to fade, and the oil or other material used will in time evaporate slightly, leaving the photograph more translucent in some places than in others, thus producing a mottled appearance,

Furthermore, the operation of grinding down the back of the paper after mounting is tedious and difficult to perform, and the paper is apt to be ground thinner in some places than in others, producing an uneven appearance.

My process avoids these defects, and is as follows: After soaking off the picture from the card and washing it clean I soak it for about eight minutes, or more if the paper is hard, in what I call the "fixing solution," compounded as follows and in about the following proportions: sulphuric ether, one-half ounce; alum, powdered, one-half ounce; water, distilled, four and one-half ounces. The effect of this treatment is to set or fix the colors of the photograph and prevent their fading out.

To cement the photograph to the glass, I employ a compound composed of rice-powder, one ounce, and sulphate of quinine, about one grain, intimately mixed together. I take a little of this paste-powder and mix with it sufficient hot water to form a paste having the proper consistency, and apply it in the same manner as ordinary paste. Its advantages are, that it is perfectly transparent, holds the picture firmly to the glass, and will never turn white or opaque in spots, as in the case of ordinary paste.

Instead of grinding down the back of the photograph and then applying one of the substances named, I omit all abrasion of the paper, and in lieu thereof apply to it the following, compounded in about the proportions named: castor-oil, two and one-half ounces; nux vomica, two drams; tincture of capsicum, two drams; oil of sassafras, two drams. I pour about a spoonful of this mixture on the back of the photograph, spread it evenly around, and let it remain for about thirty-six (36) hours, or a sufficient time for it to thoroughly impregnate the paper. I then remove the surplus and permit the paper to dry on the back, and when sufficiently dry I apply the color in the usual manner, as stated, with respect to the old process.

Treatment with this solution renders the paper so translucent that it is unnecessary to grind it thin. It gives to the picture a pearly clearness not obtainable by the old method of treatment, producing an agreeable softness and delicacy of appearance that is especially pleasing. Moreover, it is practically permanent, as it does not undergo any chemical change, so far as I am aware.

If preferred, vaseline may be substituted for the castor-oil in the compound.

I claim as my invention—

1. The process of fixing or producing photographic pictures on glass which consists in treating an unmounted photograph to a bath in a compound of sulphuric ether, alum, and water, in about the proportions specified, and then securing it, face downward, to a plate of

glass by means of a paste composed of rice-powder, sulphate of quinine, and water, in substantially the proportions specified, for the purposes set forth.

2. The process of producing colored photographic pictures on glass which consists in mounting the picture, face downward, on the glass, and treating it with a compound of castor-oil or vaseline, nux vomica, tincture of capsicum, and oil of sassafras, mixed in substantially the proportions named, and applying color either to the paper of the picture or to a glass behind it, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DOUGLAS F. FRINK.

Witnesses:

HENRY CONNETT,

ARTHUR C. FRASER.