

UNITED STATES PATENT OFFICE.

I. O. BEYSE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND
J. UTOSSY, OF LEAVENWORTH, KANSAS.

PROCESS FOR COLORING PHOTOGRAPHIC PRINTS.

Specification forming part of Letters Patent No. 50,871, dated November 7, 1865.

To all whom it may concern:

Be it known that I, I. O. BEYSE, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and improved Method of Coloring Photographic Prints; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same.

This invention has for its principal object the cheapening and increasing the durability of photographic prints, and relates more particularly to a new system of coloring photographs by means of chemical substances which so combine with the photographic prints, when applied to them, as to be indestructible, either by water, alcohol, or spirits of turpentine, and, moreover, are superior in beauty to prints colored by any of the ordinary modes hitherto known or practiced, and can never fade or discolor by exposure to the sun or any other light, said chemical substances being of such a nature that they can be applied to the prints by any one, whether acquainted with the art of coloring or not.

My new process to which I submit the prints commences when they leave the printing-frame. If the print has been printed from a somewhat intense negative, it is first washed to remove the superfluous silver, and then placed, while moist, upon a pane of glass, with its face side uppermost. The color-chemicals hereinafter particularly specified are then applied with fine camel-hair brushes, especial care being taken to remain inside of the outlines. The first-applied color-chemical, in the case of pictures of persons, being that intended to produce a flesh color upon the proper portions thereof, the component parts of which color A, as well as those hereinafter referred to by letter, together with the proper proportion of such materials, being described under their respective letters in the "schedule of chemical colors" forming part of this specification. The rosy hue upon the cheeks, if necessary, is then produced by the proper application of the color, made and compounded as indicated under B in the schedule of colors. After having finished all flesh colors the rest of the print—such as, for instance, the dress, drapery, &c.—are then colored in the same

manner as that described for the flesh portions by the use of the proper chemical's color, a portion of which, for producing various colors, are described under the letters from C to F, inclusive, of annexed schedule, the colors being in each and every case applied without reference either to the "lights" or "shades" of the print. The print, after thus having been fully or sufficiently colored, is then placed in the toning-bath, which is composed of fifty (50) grains acetate soda to eight (8) ounces of water, together with about twenty (20) drops of solution of chloride of gold, where it is allowed to remain until sufficiently "toned," when it is fixed in hyposulphate of soda, and finally finished by being washed for about a half of an hour in water to remove the hyposulphate.

From the above it will be seen that a great saving of time is here made, as heretofore, with the old method, it was necessary that the prints should remain a whole night in the water before the hyposulphate was sufficiently removed.

With regard to the time necessary for each chemical color to produce or give the right shade to the print, practice must teach the person using them. All superfluous chemicals are soaked off with fine tissue-paper or suitable absorbent, and in the operations above described it is best that they should be performed in a room with a yellow light.

The following is the "schedule of chemical colors" hereinbefore alluded to:

A, flesh color: Ten parts hyposulphate soda, one hundred parts distilled water, with gum-arabic of sufficient quantity to give it consistency.

B, vermillion: Carmine dissolved in concentrated ammonia; gum-arabic of sufficient quantity to give it consistency; or carmine and citric acid, with sufficient quantity of gum-arabic; or pure potash, with carmine in ammonia or other alkalies and acids; (alkalies producing a violet and acids a purple shade.)

C, yellow: Ten parts iodide potassium, one hundred parts distilled water, and sufficient quantity of gum-arabic; or, ten parts iodide potassium, five parts hyposulphate soda, five parts sulphate iron, one hundred parts distilled water, and sufficient quantity gum-arabic. With this yellow all varieties of shades

can be produced, from a light blonde to the darkest, by simply varying the proportions accordingly; or, ten parts salt of tin, five parts soda, one hundred parts distilled water, and sufficient quantity of gum-arabic; or, ten parts acetate lead, one hundred parts distilled water and sufficient quantity of gum-arabic in one vessel; and in another and separate bottle, two parts chromite of potassa, one hundred parts distilled water, and sufficient quantity of gum-arabic. First use the former and then the latter.

D, blonde: Fifteen parts iodide potassium, eight parts sulphate iron, one hundred parts distilled water, sufficient quantity of gum-arabic.

E, brown: Ten parts hyposulphate soda, eight parts sulphate iron, one hundred parts distilled water, and sufficient quantity of gum-arabic.

F, blue: Ten parts indigo, twenty-five parts sulphuric acid neutralized with ammonia, one hundred parts distilled water, and sufficient quantity of gum-arabic.

The above-enumerated colors are the principal ones, and if desired to produce others it is obvious that it is only necessary to vary the proportions. The proportions above given are simply illustrative and not intended to be regarded as fixed, it being readily manifest that they must be somewhat varied in order to accommodate them to the intensity of the print, be it more or less.

Among the many advantages of the herein-above-explained mode of manipulating, preparing and fixing colors upon photographic

prints may be here mentioned, in conclusion, first, that the colors are fixed in such a manner as to preclude all possibility of ever being washed off or injured by exposure to the sun or strong light, or by water, alcohol, spirits of turpentine, &c.; second, that colored prints can be thus produced at the same price, or nearly so, as common plain prints; third, that every one can color photographic prints, whether acquainted with the art of coloring or not; and, fourth, that the colors can be produced with cheapness, and at a much less cost than colors hitherto in use.

Although I have particularly explained my improvement with reference to photographic prints, it is obvious that it can be applied also to "altotypes," so called, or porcelain pictures, and to many if not all of the various styles of pictures produced in a similar manner to that employed in photography, and therefore I do not intend to limit myself to its adaptation to any one particular style or kind.

What I claim as new, and desire to secure by Letters Patent, is—

1. The manipulation of photographic prints, herein described, and for the purpose specified.
2. The preparation of colors and fixing them upon photographic prints, substantially in the manner described.

The above specification of my invention signed by me this 27th day of June, 1865.

I. O. BEYSE.

Witnesses:

A. COHEN,
C. BROWN.