

UNITED STATES PATENT OFFICE.

ISAAC REHN, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
HIMSELF AND NORRIS PETERS, OF SAME PLACE.

IMPROVEMENT IN COPYING COLORED AND DEFECTIVE DRAWINGS, &c.

Specification forming part of Letters Patent No. **114,968**, dated May 16, 1871.

I, ISAAC REHN, of the city of Washington and District of Columbia, having invented a Mode of Copying Colored or Defective Prints or Drawings, set forth the following specification of the process for performing the same.

The purpose of my invention is to obtain, by means of photography, combined with artistic skill, monochromatic copies of drawings having a variety of colors in them, in such a way as to secure the linear accuracy of the original by an easy and rapid method, and thus to avoid the necessity of making tracings of such drawings.

It is well known that a great difficulty exists in the way of copying by means of ordinary photography all subjects having a variety of colors in them, owing to the different degrees of actinic power manifested by the several colored rays of light, and hence the impossibility of copying such drawings so as to secure a uniform degree of strength and definition in all parts thereof. The red and yellow portions of the subject, and such parts as are colored by combinations of these colors, yield very feeble impressions, while the blue and combinations having blue in the ascendant give results of great energy. Where either of these colors are uniform over the subject the chromatic difficulties may, in a measure, be overcome by adapting the period of exposure to the nature of the color; but where portions of the subject are blue and other portions red or yellow it is impossible to equalize the effects of their different actinic power by any uniform period of exposure, so as to secure in the negative a uniformity of strength with the black or white portions of the object to be copied.

In order, therefore, to preserve copies of such variously-colored drawings which shall possess a clear uniformity in all parts with the original black lines, I proceed as follows:

First, I make a negative in the usual way, as though the drawing were made entirely in black lines. This negative will show in those portions from the colored parts of the subject all degrees of strength, varying as the colors vary in actinic results.

I next proceed to apply a varnish or com-

position prepared in the following or analogous manner: Take of gum-benzoin a sufficient quantity. Add to this enough strong alcohol to make, when the gum is dissolved, a varnish of the consistency of oil. To this add aniline-yellow and aniline-red until a strong orange color is secured, and the varnish is ready for use.

Other resins or substances, both for the varnish and color, may be substituted for the above, the points I aim to secure being a non-actinic translucent coating of a somewhat tenacious quality, so that it will cut readily without fracture, and that will dry quickly, occasioning no delay.

The above I have found to furnish all the required conditions, and employ it in practice.

My mode of applying this to the negative is as follows: In front of and between myself and the light I place an easel, with an opening to admit the light to the negative. Just back of the easel I lay a mirror to increase the light. Having placed the negative on the easel, the figures in all parts will be distinctly visible. With a camel's-hair pencil I now apply the non-actinic coating to all parts of the negative needing emendation. The varnish drying immediately, I proceed with suitable drawing-instruments to trace the figures through the coating, all of which will be distinctly visible. When this is done the negative is ready for printing, and will yield results as perfect as may be desired, if the work is carefully performed.

The advantages of my process are, to make photography available when else it would not be, and to do the same by an easy and rapid method, and the preservation of the linear accuracy of the original.

Having described my process, I claim—

The application of a non-actinic translucent tracing-varnish to photographic negatives, substantially as described, and for the purposes set forth.

ISAAC REHN.

Witnesses:

HENRY R. WALTON,
WM. H. BLODGETT.