

# UNITED STATES PATENT OFFICE.

CHARLES F. OAKLEY, OF LONDON, ENGLAND.

## SENSITIVE NON-HALATION PLATE.

SPECIFICATION forming part of Letters Patent No. 543,503, dated July 30, 1895.

Application filed April 9, 1895. Serial No. 545,090. (No specimens.)

*To all whom it may concern:*

Be it known that I, CHARLES FREDERICK OAKLEY, of Thornton Heath, London, Surrey, England, have invented certain new and useful Improvements in the Manufacture of Photographic Plates and Films, of which the following is a specification.

My invention has reference to the manufacture of photographic plates and films and its object is the prevention of the effects generally known as "halation." For the purpose of preventing halation it has been proposed at various times during the last six or eight years to coat the glass plate, film, or other support for the sensitive emulsion with a layer or substratum below the sensitive emulsion, this layer or substratum containing a coloring-matter which renders it non-actinic, the said coloring-matter subsequently disappearing during the development or fixing; but these colored substrata have failed to answer in practice because the coloring-matters which they contain are of such a nature that they become to a great extent taken up by the superposed coating of emulsion the sensitiveness of which is consequently seriously impaired and sometimes practically destroyed. It has also been proposed, with the object of preventing halation, to coat the glass plates or other supports with two or more coats of emulsion of graduated degrees of sensitiveness; but these plates, besides being expensive, have not been found altogether satisfactory.

Now the object of my invention is to cover the glass plate or other support with a layer or substratum colored with such a material and in such a manner that the coloring-matter will not be subsequently taken up by the sensitive emulsion applied to the plate over the substratum, the sensitiveness of the emulsion therefore not being affected.

My invention consists in the manufacture of photographic plates and films by first coating the glass plate or other support with a solution of gelatin or other suitable non-sensitive material, then immersing the plate, preferably when dry, for a sufficient length of time—say from two to five minutes, more or less—in a coloring and hardening solution,

then after washing the plate and allowing it to dry coating it with a sensitive emulsion. The coating of sensitive emulsion should be allowed to dry in a dark room. The coloring and hardening solution must be one that will not only color the layer of gelatin and render it non-actinic by entering into the substance of same, but also produce a reaction, which has the effect of oxidizing and hardening the gelatin and rendering it practically insoluble. Consequently the coloring-matter is prevented from being taken up by the sensitive emulsion subsequently applied. The solution preferably employed for the purpose is potassium permanganate and a suitable strength is obtained by adding about one ounce of the permanganate to one gallon of water.

The color in the non-sensitive substratum disappears during the development, when developers such as hydroquinone are employed or in the fixing-bath, when this contains sulphite of soda and acid.

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

1. The mode hereinbefore described of manufacturing photographic plates and films which consists in first coating the support for the sensitive emulsion with a non-sensitive material, then immersing it in a coloring and hardening solution whereby it is colored, rendered non-actinic and practically insoluble and therefore prevented from giving up its coloring matter to the sensitive emulsion, and then coating the colored non-sensitive material with a sensitive emulsion, substantially as and for the purpose set forth.

2. The mode hereinbefore described of manufacturing photographic plates and films which consists in first coating the support for the sensitive emulsion with a non-sensitive material, then immersing it in a solution of permanganate of potass whereby it is colored, rendered non-actinic and practically insoluble and therefore prevented from giving up its coloring matter to the sensitive emulsion and then coating the colored non-sensitive material with a sensitive emulsion substantially as and for the purpose set forth.

3. As a new article of manufacture a pho-

tographic plate or film consisting of a support having two coats the first coat being a non-sensitive material which has been colored and rendered non-actinic and practically  
5 insoluble by immersion in a solution of permanganate of potass after its application to said support, and the second coat being a sensitive emulsion, substantially as set forth.

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

CHARLES F. OAKLEY.

Witnesses:

JOHN C. MEWBURN,  
THOMAS L. WHITEHEAD.