

UNITED STATES PATENT OFFICE.

ALFRED BOGISCH, OF FEUERBACH, GERMANY, ASSIGNOR TO THE FIRM OF
J. HAUFF, OF SAME PLACE.

PHOTOGRAPHIC DEVELOPER AND PROCESS OF DEVELOPING.

SPECIFICATION forming part of Letters Patent No. 619,066, dated February 7, 1899.

Application filed December 29, 1897. Serial No. 664,434. (No specimens.)

To all whom it may concern:

Be it known that I, ALFRED BOGISCH, doctor of philosophy, a citizen of the German Empire, residing at Feuerbach, near Stuttgart, in the Kingdom of Württemberg and Empire of Germany, have invented certain new and useful Improvements in Processes of Developing Photographic Images, of which the following is a specification.

The paraphenyldiamins possessed heretofore only a certain theoretical value as developers for the photographic image on sensitized films, inasmuch as they represented a type of developers whose property of development is due to the presence of two amido groups which are placed in the para positions to each other. No practical application was given to these diamins, however, for the reason that even by the use of caustic alkalies for developing the image on the sensitive film they were entirely insufficient for practical purposes, and, furthermore, because they produced greenish veils on the film. The paraphenyldiamins became only then of practical importance when they were converted into their alkyl derivatives, as described in German Patent No. 69,582, as these derivatives produced the photographic image clearly without greenish veils and with very fine grain even by the use of the sulfite of an alkali. For producing, however, the intensity necessary for ordinary copying purposes the alkylized paraphenyldiamins require, notwithstanding their considerable initial rapidity of development by which they are characterized, a considerably extended time for developing the image. Their solutions do not possess the required permanency and affect slightly-sensitive fingers. An entirely different result is obtained when the carboxylized alkyl derivatives of the paraphenyldiamins (glycins) are used, as they develop the photographic image quickly with alkali sulfites without any coloration of the gelatin film and with the same fine grain as the alkylized paraphenyldiamins, but with a greater density of the silver precipitate. The alkaline solutions of these glycins of the alkylized paraphenyldiamins can be prepared in a very concentrated form and have a permanency which is not possessed by any one of the developers heretofore employed.

The glycins of the alkylized paraphenyldiamins have the following advantages:

First. Permanency of their solutions, rapid development of the photographic image on the film even with solutions containing alkali sulfites, together with a full density of the high lights, and a high degree of sensitiveness against potassium bromid as a retarder of development.

Second. The negatives do not show the slightest coloration of the film even when caustic alkali or alkali carbonate is used. The films have a very fine grain similar to that of moist collodion plates.

The glycins of the alkylized paraphenyldiamins have the following constitutional formula:



So far the best results have been attained by the dialkylized glycins of the paraphenyldiamin, paratoluyldiamin, paraxylylendiamin, alpha-beta naphthyldiamin, and alpha-alpha naphthyldiamin.

The following proportions are preferably used for the developing solution: one gram dimethyl-para-amidophenylglycin, five grams sodium sulfite, five grams potassium carbonate, and one hundred grams water.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The process herein described of developing the photographic image on sensitized plates, which consists in subjecting the sensitized plates to the action of a solution of the glycin of an alkylized paraphenyldiamin, substantially as set forth.

2. A photographic developer consisting of an alkaline solution of the glycin of an alkylized paraphenyldiamin, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALFRED BOGISCH.

Witnesses:

FRDK. HAUFF,
WM. HAHN.