No. 767,815. Patented August 16, 1904.

UNITED STATES PATENT OFFICE.

BENNO HOMOLKA, OF FRANKFORT-ON-THE-MAIN, AND NICOLAUS SCHWAN, OF SODEN, GERMANY, ASSIGNORS TO FARBWERKE, VORM. MEISTER, LUCIUS & BRÜNING, OF HÖCHST-ON-THE-MAIN, GERMANY, A CORPORATION OF GERMANY.

PHOTOGRAPHIC DEVELOPER.

SPECIFICATION forming part of Letters Patent No. 767,815, dated August 16, 1904.

Application filed October 28, 1902. Serial No. 129,157. (No model.)

To all whom it may concern:

Be it known that we, BENNO HOMOLKA, Ph.D., residing at Frankfort-on-the-Main, and NICOLAUS SCHWAN, Ph.D., residing at Soden, Germany, citizens of the Empire of Germany, have invented certain new and useful Improvements in Photographic Developers, of which the following is a specification.

Most of the substances now used in photography as "developers" react on the latent photographic image only in the presence of fixed or volatile alkalies or alkali carbonates. This is well recognized as a drawback. The fixed alkalies and alkali carbonates are of injurious influence on the gelatin coating of plates, which turns soft, swells up, and tends to curl or float off, especially in hot weather or climates. With volatile alkalies, particularly ammonia, the volatility and disagreeable odor are inconveniently felt, apart from other drawbacks. It has been endeavored for some time to find a harmless substitute for these substances. Borax, sugar-lime, potassium ferrocyanid, tribasic sodium phosphate, &c., have been proposed; but none of these have answered commercially. After numerous experiments in this direction a harmless substitute for alkalies in photographic developers satisfying all requirements has been found in the alkali salts of glycocoll.

By "glycocoll" we understand the amido acetic acid, as well as its derivatives, having an alkyl group attached to the nitrogen, especially monomethyl and dimethyl amido acetic acid and monoethyl and diethylamido acetic acid.

Especially favorable results have been obtained by employing the alkali salts of glycocoll with the following developing agents: pyrogallol, hydroquinone, pyrocatechol, para-amido phenol, glycerin, (para-oxyphenyl glycin,) eikonogen, (amidonaphtholsulfonic acid,) adurol, (brom or chlorhydroquinone,) edinol, (oxyamidobenzyl alcohol.)

The manner of using the glycocoll alkalies with photographic developers may be illustrated by the following example:

In about one-half liter of water are dissolved eighty grams of crystallized sodium sulfite and twelve grams of pyrogallic acid or eleven grams of hydroquinone, or the equivalent quantity of one of the above-mentioned developing agents, glycin and eikonogen, in form of their alkali salts. To this mixture is added an aqueous solution of twenty-four grams of glycocoll and twelve grams of caustic soda, the finished solution being made up to one thousand cubic centimeters. This solution may be used directly to develop dry-plates of brom-silver gelatin. If chlorbrom-silver plates or emulsion papers are used, the solution is diluted with the multiple volume of water. If necessary, a slight addition of alkali bromid will have a clarifying effect. The images after proper exposure appear rapidly and are distinguished by great clearness. The curling up or floating off of the coat of gelatin does not occur.

Having now described our invention, what we claim is—

A photographic developer, containing a developing agent and an alkali salt of glycocoll, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

BENNO HOMOLKA.
NICOLAUS SCHWAN.

Witnesses:
ALFRED BRISBOIS,
JOHANN HARTENSTEIN.