

UNITED STATES PATENT OFFICE.

WILLIAM FRASER CLAUGHTON KELLY AND JOHN ARTHUR BENTHAM, OF LONDON,
ENGLAND.

PHOTOGRAPHIC DEVELOPER.

935,115.

Specification of Letters Patent. Patented Sept. 28, 1909.

No Drawing.

Application filed November 27, 1905. Serial No. 289,342.

To all whom it may concern:

Be it known that we, WILLIAM FRASER CLAUGHTON KELLY, B. A., barrister-at-law, and JOHN ARTHUR BENTHAM, gentleman, both subjects of the King of Great Britain, residing, respectively, at 8 Perham road, Kensington, and 36 Beaumont street, Portland Place, both in the county of London, England, have invented certain new and useful Improvements Relating to Photographic Developers, of which the following is a specification.

This invention relates to photographic dry plates, films or the like and has for its object to facilitate the manipulation and preparation of the developer for the same. According to the said invention we employ the back of the glass or celluloid or other vehicle, or any other unoccupied space attached or forming a necessary part thereof for carrying the necessary developing chemicals, which may form a coating similar to the sensitized layer. The following chemical formula containing borax as a preservative alkali is our standard and can be readily made into a paste which can then be conveniently placed on the plate, film or other vehicle, viz: metol 2 grains, hydroquinone 4 grains, potassium metabisulfite (powdered) $\frac{1}{2}$ to 1 grain, borax 10 to 20 grains, colloid q. s., glycerin q. s. (optional for assisting solubility).

The paste formed of the above ingredients may be manipulated with a paint brush or other device for making a layer or coating the same, on the back of the plates, flat or roll films or backing paper, attached to them. When the plate or film requires developing, it is only necessary to place the same in water, when the chemicals will be dissolved and the picture will develop in the usual manner.

By this device developer can be readily carried about and plates and films sold with the ordinary chemicals self contained will be found to be most useful, especially in country places where the chemicals are difficult to obtain, but where water is always accessible. Each plate or film or band of the same

may contain the necessary quantity of developer for the surface to be developed. The additional thickness formed by the extra coating does not interfere with the "roll" films in any way as there is ample space, therefor, including an additional backing of protective paper or other substance, which may be employed between the chemicals and the usual black paper.

The borax being a bi-borate and an acid salt acts as a preservative of the dry developing constituents in the solid developing layer. Upon the immersion of the plate in water, the borax and water interact or re-act on each other and the borax hydrolizes into soda and boracic acid and so becomes an accelerator.

The developer, according to the chemical formula above set forth, is the one which we prefer to use in practice, it being a favorite and the most commercially economical and desirable. As borax, however, in addition to acting with metol-hydroquinone, also acts with a number of other developers, equal success may be obtained with any of these developers, but as they are considerably more expensive, the one specified in the formula is the best.

What we claim and desire to secure by Letters Patent of the United States is:—

1. A photographic dry developer containing borax as a preservative.
2. A photographic dry developer consisting of metol, hydroquinone, potassium metabisulfite, borax, colloid and glycerin.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses this 15 day of November 1905.

WILLIAM FRASER CLAUGHTON KELLY.

JOHN ARTHUR BENTHAM.

Witnesses to the signature of William Fraser Claughton Kelly:

T. SELBY WARDLE,

H. D. HEMESH.

Witnesses to the signature of John Arthur Bentham:

LEWIS DEXTER,

CHAS. GILLIARD.