

UNITED STATES PATENT OFFICE.

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PROCESS FOR PRODUCING PHOTOGRAPHIC PAPERS FOR MAKING PRINTS FROM TRACINGS.

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It has hitherto not been possible to produce by the so-called aniline process a commercial photographic paper for making prints from tracings, as the paper made with bichromate and phosphoric acid or phosphoric acid salts only keeps a very short time and it is not possible to produce clear prints with a uniform ground, more particularly when large sizes are concerned. The prints made by the well-known method always had spotty places owing to the liquid preparation sinking in, which greatly detracted from the clearness and consequently from the usefulness of the prints, for which reason this process has hitherto been useless in practice, more particularly since it provided no advantage as regards speed of printing as compared with tried methods.

I have now succeeded in finding a method which is entirely free from the above-mentioned drawbacks and by which a paper can be produced which keeps very long, prints quickly and gives very clear prints. The new method consists in coating in the ordinary way a suitable unprepared paper with a chromate solution or a bichromate solution or acidified monochromate with the addition of organic heavy metal salts including the salts of manganese or mixtures of the same, either mixed or one after the other.

While it has already been proposed to use heavy metal salts of organic acids for the process, the said salts fulfil an entirely different purpose, as they are intended to act as oxygen carriers, while in the present process the organic heavy metal salts are added for the purpose of making the paper keep and, in so far as they are sensitive to light, have the further very important advantage that a paper prepared in this way may be printed without a photometer, as the heavy metal salts which are printed at the same time enable the depth to which printing has been carried to be clearly seen. For this purpose the ferric salts of citric, oxalic and tartaric acid are particularly suitable. The papers prepared in this way are developed by being treated with solutions of aromatic amines or phenols or amidophenols, which may be acidified, derivatives or substitution products of the same, either by flooding the exposed paper with

such a solution or immersing the paper in it or the developer may be applied, as has been found, in a dry state or a state of solution to the unexposed paper, so that for developing it all that is necessary is to pass a damp sponge over it or to hold it over steam. The chromate heavy metal salt solution may also be used very successfully for photographic purposes by washing over baryta paper with the mixture. By using suitable amines pictures of different colours may be obtained. The solutions referred to are also very suitable for producing stable chrome pigment or gum bichromate papers.

Example.—Suitable paper is coated with 1 part of a 20% bichromate solution, 3 parts ferric ammonium citrate and 6 to 10 parts water, preferably adding a thickener, after which it is dried. The exposed paper is thereupon either coated with an approximately 5% solution of aniline hydrochloride, which may be acidified, and after the image has strongly developed, then washed in water and dried, or an acidified 2% solution of anilin is spread on the exposed paper, which is then exposed and developed by passing a moist sponge over it or holding it over steam.

What I claim is:

1. A process for the production of light-sensitive papers containing chromate solutions, consisting in adding to the chromate solutions heavy metal salts of organic acids, as set forth.

2. A process for the production of light-sensitive papers containing chromate solution consisting in adding to the chromate solutions ferric salts of organic acids, as set forth.

3. A process for the development of light-sensitive papers prepared in the manner claimed in claim 1, consisting in applying the amines required for development to the unexposed paper, as set forth.

4. A process for the development of light-sensitive papers prepared in the manner claimed in claim 2, consisting in applying the amines required for development to the unexposed paper, as set forth.

In testimony whereof I have signed my name to this specification.

HERMANN KAMMERER.