

Y. SCHWARTZ.
PHOTOGRAPHIC PAPER.
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916,616.

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Fig. 1.

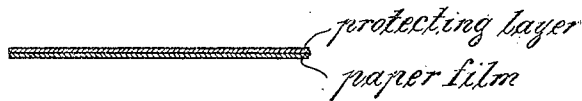
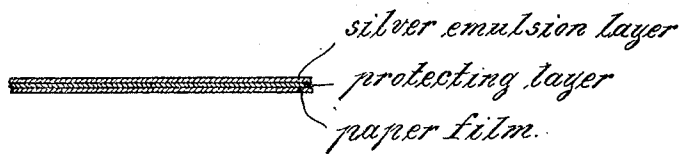


Fig. 2.



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To all whom it may concern:

Be it known that I, YORK SCHWARTZ, a subject of the King of Prussia, German Emperor, and resident of 3 Eden street, Hanover, in the German Empire, have invented an Improved Photographic Paper, of which the following is an exact specification.

My invention relates to the production of an improved paper for photographic purposes.

It is a well known fact that most kinds of paper contain large quantities of metallic particles or particles of other reducing substances, whereby such papers are rendered perfectly useless for the production of photographic silver emulsion paper, more especially, if emulsions, such for instance as emulsions for copying out purposes, containing a surplus of soluble salts of silver, come into consideration. Furthermore it is well known that few factories are in a position to produce a paper of the necessary qualities which requires special experience for its manufacture and its cost is very considerable. It will be readily understood that these reducing impurities are rendered harmless, if a protecting layer is placed between the paper and the emulsion, which protecting layer prevents the impurities of the paper and the soluble silver salts of the emulsion from reacting one upon the other. A protecting layer having water- and alcohol-proof properties could be used, whereby a mere mechanical separation of the emulsion and paper is obtained. For reasons which cannot further be discussed here such attempts have failed to give a satisfactory result.

Now I have found that a good result can be obtained by coating the impure paper with a protecting layer which contains salts insoluble or practically insoluble in water and alcohol. These latter salts react upon the silver salts diffusing from the emulsion into the paper film in such manner, that insoluble silver salts remaining within the protecting layer are formed. A proper selection of the kind and the quantity of the compound distributed in the protecting layer prevents all the silver salt from getting to the paper and inversely no substance having a bad effect upon the quality of the emulsion can enter from the protecting layer into the emulsion. In selecting the protecting layer it is further required that the latter be cheaply provided in a sufficiently pure condition and have a pure white color. In prac-

tice the protecting layer at the same time shall be substituted for the white layer for instance of baryta as usual in photographic emulsion papers, so that the paper provided with the protecting layer can without any further operation be coated with the celloidin-aristo- or the like emulsion.

The neutral phosphates of the earths, alkaline earths and of zinc, and among these particularly the neutral phosphate of calcium, are most suited for the end in view. It may here be pointed out that tri- and diphosphates of calcium, for instance the "calcium phosphoricum", referred to in the "*Deutschen Arzneibuch IV*" are excellently suitable for the purpose intended.

The phosphate is mixed with a binding means of a sufficiently inactive and resistible character and then applied to the raw paper as usual. Experiments have demonstrated that a perfect protection is obtained, if for instance the coating contains about 40 grams of the "calcium-phosphoricum" referred to for each square meter of the paper. The protecting layer, of course, can if desired, be mixed with additions, coloring matters or the like which are inactive and promote the durability of the finished emulsion paper.

To make my invention more clear, reference is had to the accompanying drawing, in which:

Figure 1 represents in a cross section and in an exaggerated scale the paper prepared according to my invention, Fig. 2 illustrates in a cross section the paper provided with a silver emulsion layer.

In view of what has been said above no further description of these drawings is considered necessary.

I claim:—

1. The hereindescribed paper for the production of a silver-emulsion paper, consisting of a paper-film, and a protecting layer placed on the paper film, the essential constituents of which layer are salts insoluble in alcohol and water, which salts react upon the silver salts diffusing from the emulsion into the ground in such manner that an insoluble silver salt, remaining within the protecting layer, is formed.

2. The hereindescribed paper for the production of silver-emulsion paper, consisting of a paper-film, and a protecting layer placed on the paper film and containing essentially the phosphates of the earths.

3. The hereindescribed paper for the production of a silver emulsion paper, consisting of a paper-film, and a protecting layer placed on the paper-film, and containing essentially
5 the phosphates of the alkaline earths.

4. The hereindescribed paper for the production of a silver-emulsion-paper, consisting of a paper-film, and a protecting layer, which is placed on the paper film, and consists of salts insoluble in water and alcohol,
10 together with inactive substances.

5. The hereindescribed paper for the production of a silver-emulsion paper, consisting of a paper-film, and a protecting layer,
15 which latter is placed on the paper-film and consists of salts insoluble in water and alcohol, and coloring material mixed therein.

6. The hereindescribed paper for the pro-

duction of a silver-emulsion paper, consisting of a paper-film and a protecting layer
20 placed on the paper-film and formed of the phosphates of the earths and of inactive substances.

7. The hereindescribed paper for the production of a silver-emulsion paper, consisting of a paper-film, and a protecting layer
25 placed on the paper film and formed of the phosphates of the alkaline earths and of coloring matters.

In witness whereof I have hereunto set my
30 hand in the presence of two witnesses.

YORK SCHWARTZ.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.