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PHOTOGRAPHIC STRIPPING PAPER

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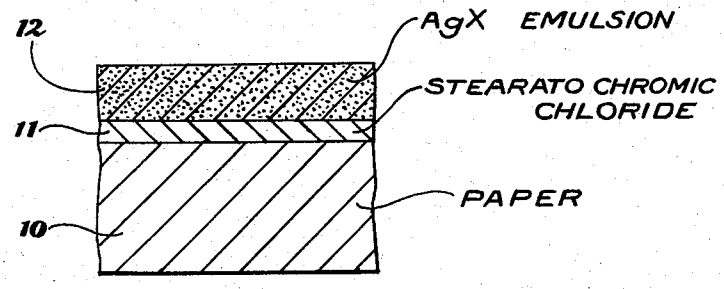


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# PHOTOGRAPHIC STRIPPING PAPER

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2 Claims. (Cl. 96—83)

This invention relates to a photographic dry stripping paper of the type having a gelatino silver halide emulsion layer temporarily adhered to a paper support which support has been treated so as to allow stripping of the emulsion layer from it when dry.

Dry stripping photographic elements have previously been described, for example, in the Nadeau U.S. Patent No. 2,326,058, granted August 3, 1943, a silver halide emulsion is temporarily adhered to a baryta-coated paper stock by means of a layer of a water soluble cellulose ester. The element was intended primarily for use in template work where the sensitive element is adhered emulsion down onto a metal plate by means of a lacquer, the paper base stripped off dry, the emulsion remaining thereon then exposed and developed followed by cutting or drilling the metal plate as desired in accordance with the silver image developed on the plate.

The mentioned dry stripping element, while commercially acceptable, has entailed the use of larger quantities of raw materials and more manufacturing operations than are desirable. Also, it has been difficult to maintain a product of uniform quality from coating to coating and irregular stripping of the paper base from the emulsion layer has been encountered. Moreover, it has been necessary to cure the metal plates to which the emulsion has been adhered for excessive periods of time of the order of 18 hours before the mentioned dry stripping operation can be commenced.

We have discovered that if a paper or similar fiber base such as a photographic paper stock is given a superficial size coating of a Werner complex salt in which a trivalent nuclear chromium atom is coordinated with a carboxylic acido group having at least 10 carbon atoms, for example, stearato chromic chloride, the resultant sized paper may be coated directly with a gelatino silver halide emulsion which will dry-strip much more readily than when hydrolyzed cellulose ester is used in the stripping layer yet the emulsion adheres sufficiently for normal handling prior to the stripping operation. This utility of the complex chromium compounds is surprising since other materials known to impart hydrophobic properties to fiber surfaces such as cellulose esters, polyvinyl esters, etc. do not provide the requisite surface for adherence of the emulsion. The emulsion may strip readily from such hydrophobic surfaces when moist but not when dry.

A representative dry stripping paper contemplated by the invention is shown in greatly enlarged cross-sectional view in the accompanying drawing wherein the single figure layer **10** is a paper support, layer **11** the superficial size coating of the Werner complex chromium compound and layer **12** the gelatin emulsion layer on the superficially sized paper surface.

The invention will now be illustrated by means of a detailed example.



*Example*

Practically any paper sheet is suitable for use in the invention as the emulsion support even an unsized paper of the waterleaf type. A photographic paper stock may be prepared in a conventional manner. A furnish for preparing a suitable paper sheet includes wood pulp, aluminum stearate, gelatin and starch although rosin sizing may be used. During formation of the sheet on the paper machine a gelatin or starch tub-sizing may be applied to the sheet. The paper stock may then be coated with a solution of the Werner chromium complex salt in any convenient manner including spray coating, air knife or press roll coating or tub-sizing methods well known in the art. When applying a stearato chromic chloride solution by air knife or similar coating methods, an aqueous solution of about 0.5 to 1.0 percent solids is suitable. A concentration greater than about 1.0 percent tends to impart a somewhat objectionable discoloration to the paper. The optimum amount of the Werner complex chromium salt applied to the paper will be found to vary depending in part upon the particular salt in use. For example, when methacrylato chromic chloride is used in place of stearato chromic chloride, approximately 25 to 50 percent more of the salt is required to obtain comparable stripping properties.

The paper thus superficially sized with the chromium salt may then be coated with a suitable gelatino silver halide emulsion of moderate hardness.

As mentioned above, the resulting sensitive element may then be laminated emulsion down to the desired base such as a metal plate using a suitable lacquer formula such as a cellulose ester dope to adhere the emulsion to the plate. A very short time thereafter, in some cases after only a few minutes but preferably after one to two hours, the paper base may be stripped off leaving the emulsion adhered to the metal plate. The desired photographic operations may then be applied to the emulsion-coated metal plate to obtain an image thereon.

The Werner chromium complex salts useful in the invention as described, include compounds in which a chromium atom is coordinated with a carboxylic acido groups such as stearato $CH_3(CH_2)_{16}COO—$, palmitato, laurato, methacrylato, abietato, etc. groups. The complex salts may be prepared by reaction of the appropriate organic acid with chromium compounds by well known methods, for example, as described in the Iler U.S. Patents Nos. 2,273,040 and 2,359,858.

What we claim is:

1. A dry stripping photographic paper comprising a paper support, a superficial coating on one surface of said support consisting of a Werner complex in which a trivalent nuclear chromium atom is coordinated with a carboxylic acido group having at least 10 carbon atoms, and a gelatino silver halide emulsion layer directly over said superficial coating.

2. A dry stripping photographic paper comprising a paper support, a superficial coating on one surface of said support consisting of stearato chromic chloride, and a gelatino silver halide emulsion layer directly over said superficial coating.

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