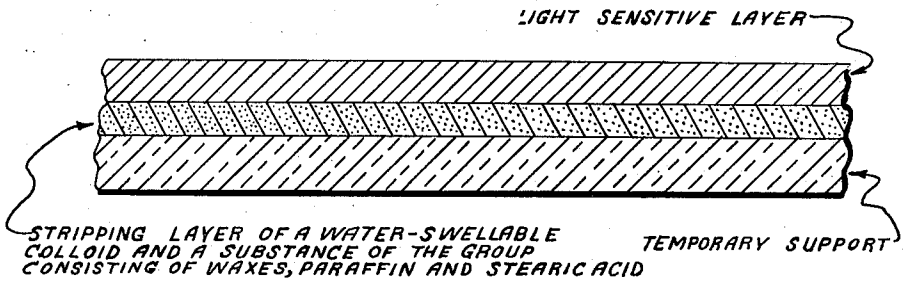
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ADHESIVE

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ADHESIVE

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Our present invention relates to the manufacture of an improved adhesive.

In the production of layers which can be stripped from their supports there have been used as a sticky intermediate layer various materials, for instance rubber, cellulose lacquer, resin, starch or the like. Also soap has been proposed for this purpose; this, however, is not suitable for producing photographic layers that can be stripped, because of its influence on the light-sensitive constituents of the layer.

With the sticky layer is associated the difficulty of adjusting its degree of stickiness, for, depending upon the intended mode of using the layer which is to be stripped, there is required a free detachment or a comparatively firm adhesion of one layer from or to the other, for instance in the case of photographic layers capable of detachment for use in the graphic art it is necessary that the two layers should be capable of separation even in the photographic baths themselves, so that the picture layer may be removed in wet condition from the preliminary supporting layer and finally transferred to the final support. In other cases, on the other hand, it is necessary that the photographic bath should be completely without effect on the adhesive intermediate layer so that the layers can be separated from each other only when dry and constituting the finished picture.

Attempts have been made to adjust the adhesion of the sticky layer by varying the amount of adhesive applied but without result for obviously the adhesiveness is a property quite specific to the adhesive and cannot be affected to the necessary degree by the thickness of the coating.

It is one object of our present invention to provide a method for adjusting the adhesive capacity of adhesives that swell or dissolve in water, to the required degree by addition of a substance that varies the adhesiveness.

Another object of our invention is the provision of an adhesive containing such substance for adjusting the adhesiveness.

Yet another object of this invention is to provide as the adhesive gelatin and as the addition for adjusting the adhesiveness a non-adhesive substance such as montan wax, paraffin, or stearic acid.

A further object of the invention is to provide an adhesive containing another sticky agent such as gum arabic.

Other objects of our present invention will be apparent from the detailed description following hereinafter especially when taken with the accompanying self-explanatory drawing showing in section a film according to the present invention.

The substance designed to adjust the adhesiveness may be soluble or insoluble in water. In the latter case the water-insoluble adjusting substance, for instance wax, may be added to the adhesive in known manner in the form of an aqueous dispersion which mixes freely in all proportions with the aqueous solution of the adhesive. Depending on the kind and proportion of the adjusting agent, the adhesiveness of the sticky intermediate layer may be diminished or increased and thereby its suitability for the purpose in view is attained.

A further possibility for adjusting the adhesiveness consists in using both for the colloids soluble or capable of swelling in water and for the adjusting agent mixtures of various substances. The kind and composition of the mixture depends on the purpose in view, for example paper capable of being stripped may be worked in aqueous solutions, and in this case a more or less high proportion of gum arabic is used for diminishing the adhesiveness of a gelatin used as the adhesive. If the aqueous processing bath is at the same time alkaline, the adhesive power may be increased by an addition of stearic acid to a wax used as the adjusting agent.

Since swelling and solubility of the sticky intermediate layer are dependent on the degree of hardening of the latter, the stickiness of the intermediate layer may be also influenced by a hardening agent. Hardening agents may be also used in the form of a bath or a vapor permitted to act subsequently on the adhering intermediate layer. When gelatin is the adhesive agent, the known hardening agent, alum or formalin, may be employed.

The invention may be applied for various purposes. It may be used in making stripping photographic plates, films, papers or the like in which the light-sensitive layer is cast directly on the adhesive layer of a provisional support, in order later, during or after the processing, to be removed from this provisional support or to be transferred therefrom to another support.

Again, the invention serves for producing stripping layers of any kind, for instance of paper, fabric or other transparent, semi-transparent or opaque materials, of which the constituent layers are later to be separated from each other after printing, inscribing or painting

one or both layers, or to be transferred to another support. Also separated layers may be covered by casting subsequently on one or both sides with a light-sensitive layer, for instance with a photographic silver halide gelatin emulsion.

The adhesive intermediate layer may carry in known manner dyestuffs or other substances which afford anti-halation properties or other desired properties for the photographic stripping layer. Thus, there may be added to the intermediate layer in the case of stripping Röntgen emulsions, fluorescing substances or this sticky intermediate layer may contain in known manner substances which in the case of a support carrying emulsions on both sides prevent the penetration of active light rays by absorption.

The following examples illustrate the invention:

Example 1.—Two papers are stuck together by the immersion method by means of a solution of gelatin of 10 per cent strength to which has been added, while hot, an aqueous suspension of 10 per cent strength of montan wax in a proportion suitable for the desired adhesiveness. Whereas the pure gelatin solution provides a very firm union, the stickiness of the solution falls with the increasing proportion of the montan wax suspension, for instance 25, 50 or 75 per cent. A detachment of the two papers is the easier the higher the content of montan wax in the adhesive solution, so that the stickiness of the adhesive may be adjusted by the content of the montan wax in the gelatin solution.

Example 2.—Instead of the aqueous solution of gelatin of 10 per cent strength described in Example 1, an aqueous solution containing 5 per cent of gelatin and 5 per cent of gum arabic may be used and instead of the aqueous montan wax dispersion of 10 per cent strength a mixture of equal parts of an aqueous montan wax dispersion of 5 per cent strength and an aqueous dispersion of paraffin of 5 per cent strength.

Example 3.—The adhesiveness of the sticky intermediate layers described in Example 1 or 2 is enhanced by the addition of 10 cc. of a chrome alum solution of 10 per cent strength per liter of the adhesive solution or alternatively by bathing the adhering papers in a solution of 5 per cent strength of potassium alum or by subjecting them to formalin vapor.

Example 4.—Two papers are stuck together by a mixture of about 4 parts of an aqueous dispersion of 30 per cent strength of montan wax and 1 part of an aqueous gelatin solution of 20 per cent strength. One of these papers weighs about 50 grams per square meter and the other about 150 grams per square meter.

After sticking the papers together and drying them the paper that weighs 50 grams per square meter is coated with a cast photographic silver halide gelatin emulsion. The stickiness is so adjusted in this case that the two papers may be separated only after the processing of the photographic emulsion is finished.

What we claim is:

1. Photographic stripping material comprising a temporary support, a light-sensitive layer thereon and a water-sensitive adhesive for temporarily bonding said support to said layer, said adhesive comprising a water-swellable adhesive colloid and a member of the class consisting of waxes, paraffin, and stearic acid.

2. Photographic stripping material comprising a temporary support, a light-sensitive layer thereon and a water-sensitive adhesive for temporarily bonding said support to said layer, said adhesive comprising gelatin and a member of the class consisting of waxes, paraffin, and stearic acid.

3. Photographic stripping material comprising a temporary support, a light-sensitive layer thereon and a water-sensitive adhesive for temporarily bonding said support to said layer, said adhesive comprising gelatin and wax.

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