

UNITED STATES PATENT OFFICE.

JAMES FINDLAY, OF ILFORD, ENGLAND; ASSIGNOR TO BROMAR LIMITED,
OF LONDON, ENGLAND.

BASE OR SUPPORT FOR PHOTOGRAPHIC SENSITIVE EMULSIONS.

No. 822,107.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES FINDLAY, doctor of medicine, a subject of the King of Great Britain, residing at 1 Kensington Gardens, Ilford, in the county of Essex, England, have invented a certain new and useful Improved Base or Support for Photographic Sensitive Emulsions, of which the following is a specification.

This invention relates to an improved base or support particularly adapted for the reception of photographic sensitive emulsions, films, and the like, the chief object being to produce a base or support having the proper-
ties of translucency and non-inflammability.

In preparing "films" for photographic purposes it is usual to provide a base or support composed of celluloid—an explosive and highly-inflammable substance—with a coating of sensitive emulsion, the said base or support in some instances consisting of paper rendered translucent by the application thereto of various varnishes either before or after exposure to light. The inflammability of such films constitutes a grave objection, and the present invention is designed to obviate or minimize the risks attending the use of films so constructed, and while rendering the film or base non-inflammable the translucency thereof is obtained without having resort to varnishing.

For the purposes of my invention I may proceed in the following manner: For example, I may take a suitable quantity—say, one kilogram—of dinitrocellulose, preferably made from linen rags or similar suitable substance, or I may employ mononitrocellulose made from any fiber or from paper or other material, such as esparto, and two and one-half kilograms of clear hard gelatin or glue. To these I add seven and three-fourths kilograms of glacial acetic acid into which ninety grams of crystallized chloral hydrate have been dissolved. The mass is now slowly heated until the ingredients are thoroughly dissolved. When this is accomplished, I add to the solution eight liters of a two-per-cent. solution in seventy per cent. alcohol of equal parts gum-dammar and gum-storax. Having been thoroughly incorporated, the mass is poured or deposited upon suitable slabs or into suitable molds to form sheets, slabs, or thin film. The sheets, slabs, or film may be formed by mechanical or other suitable

means, or the mass may be caused to assume any other convenient form.

There may be incorporated in the material of the base or support any suitable pigment or coloring-matter with the object of rendering the same opaque, the coloring-matter being in liquid or powdered form.

Although I have stated above a mode of carrying out my invention, the proportions of the several ingredients may be varied, according to the character of the base or support required. For example, by employing about one and one-fourth kilograms of di or mono-nitrocellulose a clearer, but more inflammable, sheet is obtained, while if the proportion of gelatin be increased—say to two and three-fourth kilograms—a softer film will be obtained. Similarly, by increasing the quantity of glacial acetic acid the film may be rendered more tensile and the chloral hydrate, which may, if desired, be uncrystallized, may be varied between eighty and one hundred grams. To continue, the solution of gums in alcohol may be five per cent. and less than eight liters, while the alcohol may be sixty per cent., seventy per cent., or ninety per cent. Moreover, the gelatin employed may be other than hard or clear, with similar results.

The slabs, sheets, or films produced as above described having been dried, the said sheets, slabs, or films are passed through a solution adapted to impart non-inflammability, the solution being composed of one part gum-shellac dissolved in one part borax or equivalent alkaline substance—such as ammonia, soda, potash—and ten parts water. This solution may, however, be stronger in alkaline matter.

Upon the slabs, sheets, or films being again dried the coating of sensitive emulsion may be applied.

The molding or otherwise shaping or forming of the sheets, slabs, or films may be accomplished immediately after incorporation or at a subsequently convenient time. The treatment of the base or support with the shellac solution may, moreover, be carried out as and when desired.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A non-inflammable transparent and white base or support for photographic sensitive emulsions composed of dinitrocellu-

lose, gelatin or glue and glacial acetic acid into which is dissolved chloral hydrate, and an alkaline solution for rendering the base non-inflammable.

5 2. A non-inflammable base or support for photographic sensitive emulsions composed of dinitrocellulose, gelatin or glue, glacial acetic acid into which is dissolved chloral hydrate, gum-dammar and gum-storax, in or
10 about the proportions given.

3. A non-inflammable transparent and white base or support for photographic sensitive emulsions composed of dinitrocellulose, gelatin or glue and glacial acetic acid
15 into which is dissolved chloral hydrate, and rendered non-inflammable by treatment in an alkaline shellac solution.

4. A method of manufacturing a base or support for photographic sensitive emulsions
20 consisting in adding to a suitable quantity of a nitro derivative of cellulose and gelatin or glue, a solution of chloral hydrate in glacial acetic acid slowly heating the mass until the ingredients are thoroughly dissolved, then
25 adding an alcoholic solution of gum, and then suitably molding or forming the mass into sheets, slabs or films.

5. A method of manufacturing a base or support for photographic sensitive emulsions
30 consisting in adding to a suitable quantity of a nitro derivative of cellulose and gelatin or glue, a solution of chloral hydrate in glacial acetic acid, slowly heating the mass until the ingredients are thoroughly dissolved, then
35 adding an alcoholic solution of gum, then suitably molding or forming the mass into sheets, slabs or films, and then subjecting the sheets, slabs or films to a suitable solution to impart non-inflammability thereto.

40 6. A method of manufacturing a base or support for photographic sensitive emulsions

consisting in adding to a suitable quantity of a nitro derivative of cellulose and gelatin or glue, a solution of chloral hydrate in glacial acetic acid, slowly heating the mass until the
45 ingredients are thoroughly dissolved, then adding an alcoholic solution of gum, then suitably molding or forming the mass into sheets, slabs or films, and then subjecting the sheets, slabs or films to an alkaline shellac
50 solution so as to render said sheets, slabs or films non-inflammable.

7. A method of manufacturing a base or support for photographic sensitive emulsions, consisting in adding to a suitable quantity of
55 a nitro derivative of cellulose and a gelatinous substance, a solution of chloral hydrate and glacial acetic acid, then heating the mass until the ingredients are thoroughly dissolved, then adding to the mass a gelatinous
60 solution, and then suitably molding the mass into sheets, slabs or films.

8. A method of manufacturing a base or support for photographic sensitive emulsions, consisting in adding to a suitable quantity of
65 a nitro derivative of cellulose and a gelatinous substance, a solution of chloral hydrate and glacial acetic acid, then heating the mass until the ingredients are thoroughly dissolved, then adding to the mass a gelatinous
70 solution, then suitably molding the mass into sheets, slabs or films, and then subjecting the sheets, slabs or films to an alkaline shellac solution so as to render them non-inflammable.
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In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 24th day of February, 1905.

JAMES FINDLAY.

Witnesses:

FRANCIS EDWARD FREETH,
F. J. RAPSON.