

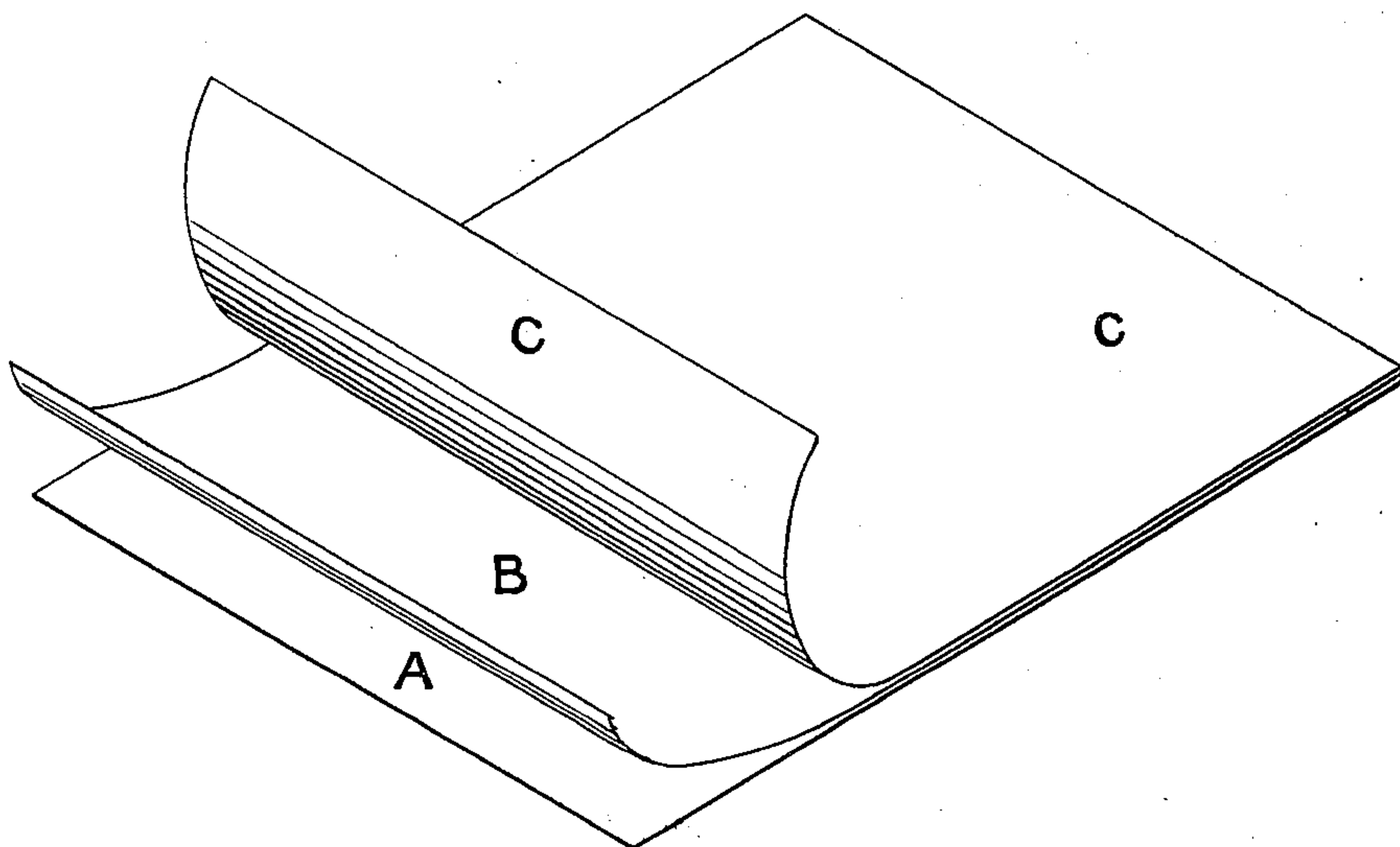
No. 670,118.

Patented Mar. 19, 1901.

J. E. THORNTON & C. F. S. ROTHWELL.  
PHOTOGRAPHIC STRIPPING FILM.

(Application filed Mar. 6, 1900.)

(No Model.)



WITNESSES.

*Joseph Prates.*  
*Alfred Davies.*

INVENTORS.

*J. E. Thornton*  
*C. F. S. Rothwell*  
*By J. Howard Smith*  
*att'y*

# UNITED STATES PATENT OFFICE.

JOHN E. THORNTON AND CHARLES F. S. ROTHWELL, OF MANCHESTER,  
ENGLAND.

## PHOTOGRAPHIC STRIPPING-FILM.

SPECIFICATION forming part of Letters Patent No. 670,118, dated March 19, 1901.

Application filed March 6, 1900. Serial No. 7,541. (No specimens.)

*To all whom it may concern:*

Be it known that we, JOHN EDWARD THORNTON and CHARLES FREDERICK SEYMOUR ROTHWELL, subjects of the Queen of Great Britain, and residents of Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Photographic Stripping-Films, of which the following is a specification.

10 The object of this invention is to provide a new or improved film for photographic purposes (of that class known as "stripping-films") which will have great advantages over those hitherto known, and improved methods  
15 of manufacturing such films.

Hitherto stripping-films have been produced by preparing a strong, thick, white, and comparatively opaque paper as a base upon which the sensitive emulsion has been  
20 spread to render it capable of being stripped or removed from the paper base in one of the following ways:

(a) The paper base has been coated with a thick coating of gelatin in one or several layers and the sensitive emulsion spread thereon in a thick layer. This gelatin coating being soluble at a lower temperature than the film of emulsion, it was placed in warm water to dissolve the soluble gelatin and permit of  
30 the removal of the paper base from the film. This process is troublesome and uncertain, involving a number of other operations requiring more dexterity and care than many photographers will exercise.

35 (b) The paper base has been coated with a covering of gum or other such substance, soluble in cold water or other liquids, to receive the sensitive emulsion; but such films are troublesome of manipulation and otherwise objectionable.

(c) The paper base has been coated or treated with a solution of lac or shellac, upon which the sensitive emulsion has been coated; but it was found that films so prepared would  
45 frequently refuse to strip or separate from the base as and when required, thereby rendering such films a failure.

(d) The paper base has been coated or treated with collodion or with rubber or with  
50 collodion and rubber to receive the sensitive

film. These substances have allowed the film to be easily stripped or removed from the base, but frequently did not hold the film securely enough to the paper, the result being that the films often "frilled" during develop-  
55 ment and washing, and in some cases, owing to the rubber changing or hardening upon keeping, the films dropped off the paper before or during use.

(e) The paper base has also been coated or  
60 treated with one of the substances mentioned above to render the film capable of being stripped or removed, and the sensitive film has been strengthened or reinforced at some stage of the process by applying thereto a  
65 second film of insoluble gelatin, collodion, or the like. This has usually been done after the picture on the film has been passed through the operations of development, fixing, and washing. This process is objection-  
70 able, as it entails upon the photographer difficult manipulation which is not easily carried out.

In a stripping-film we find that it is of the utmost importance to secure success that the  
75 sensitive film should adhere perfectly to the paper base or backing during all the operations until finally dried and that then or at any time afterward it should be capable of being quickly and easily separated or stripped.  
80 Our invention accomplishes this to a degree of ease and perfection not hitherto attained.

Our invention consists, essentially, in preparing or coating a paper base with a compound or substance prepared by treating or  
85 dissolving the aluminium or zinc salts of fatty or resin acids (or a mixture of these salts) with a volatile light hydrocarbon solvent, such as benzol or coal-tar naphtha, and drying or solidifying same in a current of heated air and  
90 then upon this substance spreading a layer or coating of sensitive emulsion sufficiently thick to produce a strong film.

The drawing shows a perspective of the film.  
95

As an example of a suitable formula for preparing the stripping medium B the following may be given; but the ingredients may be varied considerably and yet produce the required result: aluminium stearate, six per  
100



cent.; aluminium resinate, two per cent.; aluminium palmitate, one per cent.; aluminium oleate, two per cent.; aluminium benzene, eighty-nine per cent.; total, one hundred per cent. The zinc salts may replace the above aluminium salts. In carrying out the invention this prepared substance may be applied direct to the paper base A or it may be applied thereto after the paper has been first  
 10 treated or coated with gelatin sizing or otherwise. The base A so prepared is then rolled or calendered by means of calendering-rollers until its surface is perfectly smooth and free from grain.

15 The object of the smooth surface is to leave the film upon removal from the paper with the highest possible degree of transparency and freedom from grain. If, however, a translucent instead of transparent film is desired,  
 20 the rolling is omitted, whereupon the grained surface of the treated paper is reproduced upon the film.

Upon the prepared calendered base of paper A is applied the sensitive emulsion, and  
 25 when this has been dried the film C is ready for use.

We prefer to build up our film by coating the treated paper A with gelatin mixed with chrome-alum or other suitable hardening  
 30 agent and then with gelatin emulsion, so as to obtain a film C of the requisite thickness and strength without the necessity of strengthening it by adding at some later stage of the process. We also prefer to coat the back of  
 35 the paper with gelatin in order to prevent curling of the combined film in the developing and other solutions, or the paper may be run through a solution of gelatin before treatment.

40 It is advisable to add chrome-alum or other well-known hardening agent to the emulsion and also to the gelatin and for producing the strengthening-film for the purpose of making the films more or less insoluble when dried.

45 A film formed upon such a prepared paper base can be removed therefrom with the greatest ease by simply pulling the film and paper apart with the fingers, no heat nor solvents being necessary. Moreover, the film  
 50 never comes off without being pulled and never fails to come off when desired.

Films can be manufactured in the way described for various purposes, including rapid or slow gelatino-bromid emulsions for devel-  
 55 opment, gelatino-chlorid emulsions for printing out or for development and also for nega-

tives, kinematograph positives, lantern or window transparencies, and other purposes.

What we claim as our invention, and desire to protect by Letters Patent, is—

1. In a photographic stripping-film the combination with an opaque paper base and a layer or film of sensitive emulsion, of a layer of a substance or compound composed of a salt of a fatty and resin acid dissolved and  
 65 dried, interposed between the base and the sensitive emulsion to render the latter capable of being stripped off and removed without extraneous aid substantially as described.

2. A photographic stripping-film comprising in its construction, a base of opaque paper, a stripping medium of a salt of a fatty and resin acid dissolved and dried, and a layer of sensitive emulsion, substantially as  
 75 described.

3. A photographic stripping-film comprising in its construction, a base of opaque paper, a stripping medium of a salt of a fatty and resin acid dissolved and dried, a layer of insoluble gelatin, and a layer of sensitive  
 80 emulsion substantially as described.

4. In a photographic stripping-film the combination with an opaque paper base and a layer of sensitive emulsion, of a layer of a substance or compound composed of an aluminium salt of a fatty and resin acid, inter-  
 85 posed between the base and the sensitive emulsion to enable the latter to be easily stripped and removed without extraneous aid substantially as described.

5. A photographic stripping-film comprising in its construction, an opaque paper base, a stripping medium applied thereto of an aluminium salt of a fatty and resin acid dissolved in a light hydrocarbon solvent and dried,  
 95 and a layer of sensitive emulsion imposed thereon, substantially as described.

6. A photographic stripping-film comprising in its construction, an opaque paper base, a stripping medium applied thereto of an aluminium salt of a fatty and resin acid dissolved in a light hydrocarbon solvent and dried, a layer of insoluble gelatin, and a layer of sensitive emulsion, substantially as described.

In witness whereof we have hereunto signed  
 105 our names in the presence of two subscribing witnesses.

J. E. THORNTON.

C. F. S. ROTHWELL.

Witnesses:

J. OWDEN O'BRIEN,  
 HARRY BARNFATHER.