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PATENT SPECIFICATION



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209,404

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COMPLETE SPECIFICATION.

Improvements in or relating to the Production of Cinematographic Films.

We, TECHNOLOR MOTION PICTURE CORPORATION (a corporation organised under the laws of the State of Maine, United States of America), of 110, Brookline Avenue, Boston, Massachusetts, United States of America, Assignees of DANIEL FROST COMSTOCK, a citizen of the United States of America, of 110, Brookline Avenue, Boston, Massachusetts, in the United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a method of treating cinematograph films after exposure and has for its object to overcome the shrinkage difficulties.

We are aware that it has been proposed to employ inextensible temporary backings on which the films are mounted for exposure, development, and subsequent treatment.

According to this invention, the celluloid film after exposure through the back is mounted on an inextensible backing for the purpose of developing.

The said inextensible backing may be composed of a thin metallic band such as a steel or other metallic ribbon copper plated. The backing is also preferably lacquered and dried before the film is cemented thereto as will appear hereinafter.

As an illustration one embodiment of the invention is shown in the accompanying drawings, in which:—

Fig. 1 is a face view of the cinematographic film;

Fig. 2 is an edge view of the film and a backing before being attached together;

Fig. 3 is a similar view of the parts after being joined; and

[Price 1/-]

Fig. 4 is a section on line 4—4 of Fig. 3.

In the drawings P indicates a photographic strip comprising a light-sensitive or image layer I and a supporting layer C which may be celluloid, and B indicates a backing such as above referred to.

A backing of brass can be readily cemented to a celluloid film but such a backing is easily dented. A backing of steel ribbon has the necessary strength and flexibility and is not easily dented. About four-thousandths of an inch is a satisfactory thickness for the backing. With certain cements, such as the cement hereinafter described, the adhesion between the film and a steel backing is improved by plating the backing, either with copper or an alloy of copper. The plating may be carried on continuously as for example, by continuously feeding the steel ribbon through the following stages in succession; acid bath, water bath, caustic scrubber, water bath, electrolytic bath, washer, acid bath, washer and drier. The adhesion is also improved by coating the backing with a lacquer, the lacquer being dried preferably at a temperature of about 120° to 125° F.

A suitable cement for use with a film whose base is celluloid comprises amyl acetate with an admixture of a small amount of camphor, the acetate serving as a celluloid solvent to soften the surface of the celluloid and render it adhesive. When the film and backing are brought together in the cementing process they are preferably pressed together as by feeding them between pressure rollers. After the film and backing have been cemented together the resulting product is preferably subjected to a temperature of the order of 125° F. for about thirty minutes. For some purposes the lacquer-

ing and cementing may be effected in a single stage by mixing the lacquer and cement (*e.g.*, a suitable lacquer and amyl acetate) using the mixture as a cement
 5 between the film and an unlacquered backing, and subsequently drying the combined film and backing at approximately 125° F.

A process as above described is particularly applicable in making matrices of the relief type, the film being printed through the back with the images in uniform relation to the perforations by which they are to be subsequently
 15 registered, the film being then backed, developed and hardened throughout the exposed portions of the emulsion so that the unexposed portions may be etched off with hot water. We wish it to be
 20 understood, however, that no claim is made *per se* to the method of exposure through the back and development from the front.

In a two color process one matrix
 25 reproduces the red aspect of the scene and another matrix the green aspect. In producing a subtractive color film from the two matrices the red and green images may be successively printed by
 30 imbibition on the same blank film, the complemental images being printed in

accurate registration by virtue of the backings holding the matrix images in the same relationship to the perforations by which they are registered with corresponding perforations in the blank
 35 film.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to
 40 be performed, we declare that what we claim is:—

1. In a method of making cinematograph film mounting the celluloid film after exposure through the back on an inextensible backing for the purpose of
 45 developing.

2. In a method of making cinematograph film mounting the celluloid film after exposure through the back on a
 50 backing composed of a thin metallic band for the purpose of developing.

3. A method of making a cinematograph film as claimed in Claim 2 characterised in that the photographic strip
 55 is united with the metallic strip by an intermediate layer of binding material.

Dated the 17th day of December, 1923.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

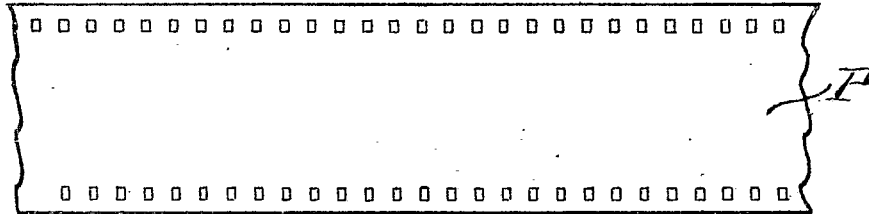


Fig. 2

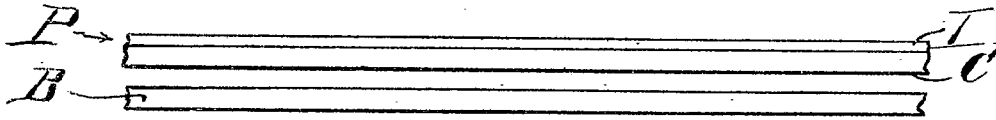


Fig. 3

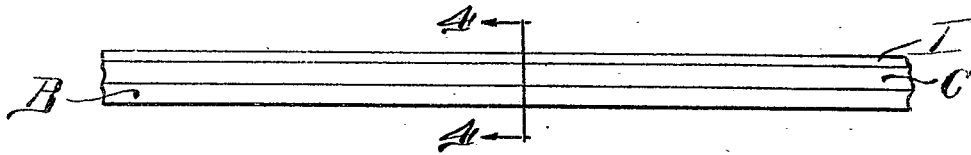


Fig. 4

