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R. BERTHON

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PROCESS FOR THE OBTAINMENT OF PHOTOGRAPHIC SOUND FILMS

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Fig.1.

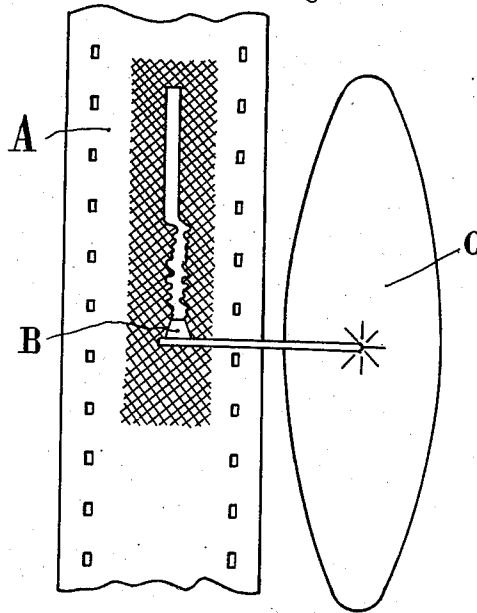


Fig.2.

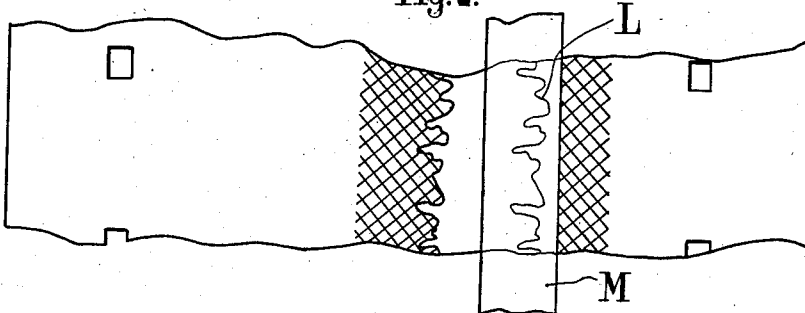
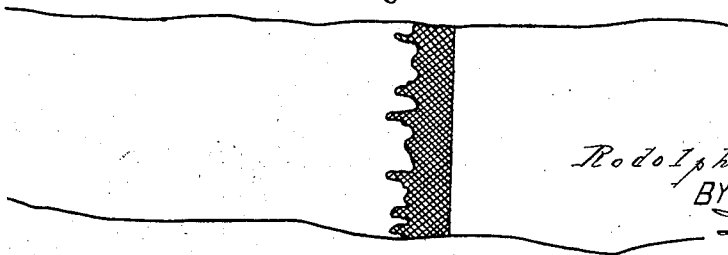


Fig.2a



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PHOTOGRAPHIC SOUND FILMS

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3 Claims. (Cl. 274-46)

Various photographic methods have been proposed for the recording of talking or sound films, which methods, according to their promoters, have the advantage of effecting the recording with the least possible inertia of the vibrating members. Unfortunately, the advantages to be derived from a reduction in the weight inertia of the vibrating members are more than outweighed by the defects resulting from the photochemical inertia of photographic emulsions. The outlines of the record are thus deformed by irradiation depending on the higher or lower speed of the vibrations and the sounds are anamorphosed. In fact, photographic sound-recording processes never give a degree of purity and faithfulness comparable to wax records on discs, cylinders, etc.

This invention has for its object a process and mechanical devices whereby sound or like surfaces to be picked up photo-electrically by conventional methods (e. g. tube amplifiers) for use in the talking film trade may be obtained photographically.

As a novel kind of product this invention also covers such sound surfaces as obtained by carrying the process considered into effect.

According to this method, a "sound negative" is first produced by recording sound vibrations obtained from a diaphragm or like vibrating device and from a stylus or like recording member having a definite width and receiving the said vibrations which cause it to oscillate transversely with respect to the film or like support used, this film or support being covered with a thin opaque plastic coating. The said support is caused to travel by any suitable means while the said recording member which is suitably pressed thereon will mark a transparent area through the thin plastic coating on the support, the said area being a straight one so long as the diaphragm or like device remains stationary and having a saw-tooth appearance on both margins thereof if the said diaphragm or like device is set into vibration.

The support thus carved constitutes a "negative" by means of which photographic prints to be picked up photoelectrically may be "printed" in the manner to be described hereinafter, the said prints moreover and as desired comprising fixed or moving pictures suitably combined with the sound record or being used in combination with a separate ordinary film to be fed in synchronism therewith.

In the accompanying drawing, in which is shown a film made according to this invention,

together with an illustrative embodiment of an apparatus by which it may be made:

Fig. 1 is a front view of a negative film in the process of having a sound-recording area formed thereon, the diaphragm being shown in perspective;

Fig. 2 is an enlarged view of a portion of the film appearing in Fig. 1 and illustrating one of the steps of the process.

Fig. 2a is a view corresponding to Fig. 2 but showing a corresponding part of a positive film printed from the film of Fig. 2.

A designates a transparent celluloid, viscose or like support covered with a thin opaque layer of a substance of wax-like plasticity and which if necessary may be hardened by means of suitable reagents; more simply such coating may consist of a lampblack layer which is deposited continuously and which after it has been deposited may be fixed by means of a spray or the like.

B designates a recording member made of metal, fibre or like suitable material; such a device must have a certain width on its line of contact with the supporting surface A which has to be denuded by friction, such width being greater than the greatest elongation of the oscillations impressed upon it. A suitable guiding means (not shown) allows the said recording device to be so guided that it may oscillate laterally, that is, in the transverse direction to the support A.

C designates a vibrating diaphragm the oscillations of which are transmitted to the recorder B. The said diaphragm may be replaced by any of the electro-mechanical devices now used for gramophonic records.

It will be appreciated that if the support A be fed continuously, the recording member B will mark a transparent area through the opaque coating. As pointed out above, the said area will have straight edges so long as C does not vibrate; and will have a denticulated appearance when C is vibrating, this vibration taking place parallel to the surface of the support, as will be plain from the drawing.

Photographic prints are obtained from the negative so produced. The operation may be performed in the following manner which is diagrammatically illustrated in Fig. 2.

A considerably magnified portion of the outline L is shown in the figure, one margin thereof being concealed by some kind of a rectilinear mask M. If an ordinary sensitized film be exposed in such conditions, after same has been developed and fixed, a black outline will be obtained

on white background which is similar to the one shown on Fig. 2a; alternatively, if the film be reversed as in the case of goffered films, a white outline will be obtained on black background. In both cases the outline as projected will have sharp edges free from any half tones, as this is the case generally with direct photographic records on "sound negatives".

Printing may be performed from the negative by any one of the several methods well known in the art and which it is not thought necessary to specify in detail here.

From what is disclosed hereinabove it will be seen that the main feature of the invention resides in the lateral oscillation, that is, transversely with respect to the support, of the recording members which are effective through the whole depth of the coating so that only the side outlines of the record may be effective for sound reproduction.

While I have shown the invention as embodied in a specific form, it is to be understood that various changes in details may be made without departing from the scope of the invention, and I therefore do not intend to limit myself except by the appended claims.

I claim

1. The method which comprises moving a film comprising a relatively translucent support having thereon a coating of relatively opaque plastic material, vibrating in a direction parallel to the

face of the film a recording member having an edge extending parallel to said face and greater in width than the extent of the vibration, thereby removing said coating to form a relatively translucent area extending along the film and having edges corresponding in form to said vibrations.

2. The method which comprises moving a film comprising a relatively translucent support having thereon a coating of relatively opaque plastic material, vibrating in a direction parallel to the face of the film a recording member having an edge extending parallel to said face and greater in width than the extent of the vibration, said vibration removing said coating to form a relatively translucent area extending along the film and having edges corresponding in form to said vibrations, masking one of said edges, and printing the unmasked edge and a portion of the area adjacent thereto.

3. In combination, a movable film having a coating of plastic material, a recording member having an edge disposed transversely of said movement and in position to remove part of said coating during movement of the film, and means for vibrating said member to move its edge parallel to the surface of the film in a direction transversely of said movement, the width of said edge being greater than the maximum vibration thereof.

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