

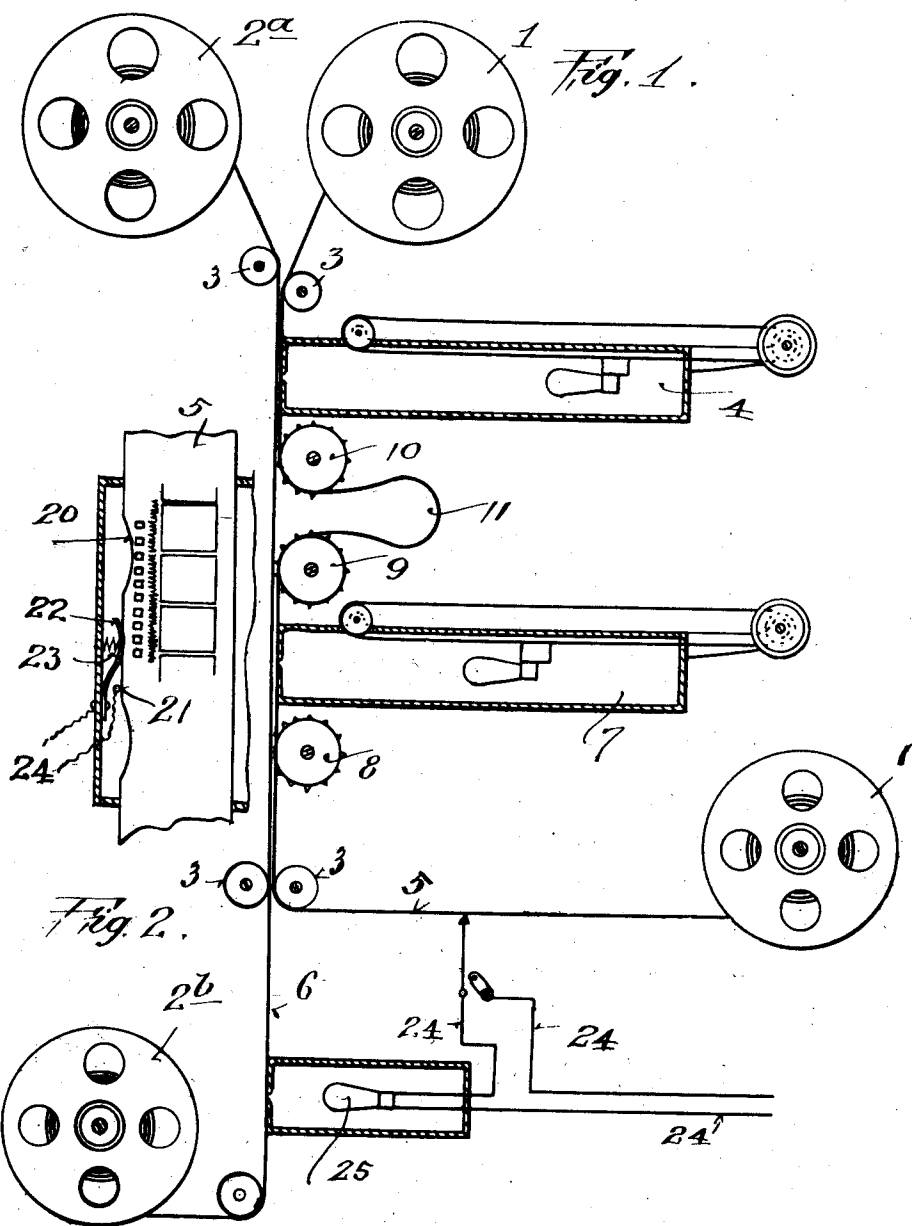
Dec. 18, 1928.

L. DE FOREST

1,695,415

TALKING MOTION PICTURE RECORD

Filed May 17, 1924



See de Forest ^{Inventor}
By his Attorney's *Darby Clark*

Patented Dec. 18, 1928.

1,695,415

UNITED STATES PATENT OFFICE.

LEE DE FOREST, OF NEW YORK, N. Y., ASSIGNOR TO DE FOREST PHONOFILM CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TALKING-MOTION-PICTURE RECORD.

Application filed May 17, 1924. Serial No. 713,887.

REISSUED

This invention relates to the art of photographically producing on a single film sound and picture record, and has for its principal object the provision of means for eliminating ground, machine and other extraneous noises on the sound record where silence is desired.

A further object of the invention is to provide a sound record which gives absolute silence at desired portions thereof due to the printing process employed to secure that result.

A further object of the invention is to provide instrumentalities and a method employed in connection therewith for accomplishing the above objects, which are simple in structure and use, efficient in operation, and economical of manufacture and application.

Further objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, together with the novel methods employed in accordance therewith, all as will be more fully hereinafter set forth, as shown by the accompanying drawing and finally pointed out in the appended claims.

Referring to the drawing:—

Fig. 1 diagrammatically illustrates a printing process employed in the talking motion picture or phonofilm art embodying my invention.

Fig. 2 is a diagrammatic view of a portion of the face view of a talking motion picture film, employed in accordance with my invention.

The same part is designated by the same reference character wherever it occurs throughout the several views.

In printing photographic sound records on a film, such as a motion picture film, i. e., printing a positive from a negative, it is extremely desirable to have a blackened positive on the sound record strip so as to give silence in reproduction at such points on the negative film where there is no sound record. In other words, in the talking motion picture art, where a photographic sound record is made simultaneously with the picture record, there are points in the film where there are no sound records, and in such art, where a varying density light is employed to produce the sound controlled light source, it is

advisable to have the light out where no sound is to be recorded. This is more particularly true during the printing operation than in the recording operation. This will insure a blackened positive on the sound record strip, which blackened positive will not affect the sound reproducing mechanism and therefore give absolute silence at the portions of the film where silence is desired.

It is among the special purposes of my present invention to thus blacken the positive on the sound record strip of a film and to do so automatically, by completely exposing such portions of the positive to full light density during the printing operation from the negative film, and I further propose to do the same automatically by so marking the film at the silent sound record portions thereof for controlling the circuit of the blackening light.

Referring to the drawings, wherein I have diagrammatically illustrated the principles involved, reference characters 1 designate negative film reels which are fed in the usual well-known manner by the printing lights so as to effect a printing of the positive film fed from reel 2^a to reel 2^b. Suitable guide rollers 3 are employed in the usual well-known way for printing processes of this nature. A printing light 4 of the standard type effects a printing of the picture record from the negative film 5 to the positive film 6. This printing light may be of any suitable or standard construction. The sound printing source is diagrammatically illustrated at 7 and this effects a printing from the negative film 5 of the sound record on to the positive film 6. The usual feed sprockets 8, 9 and 10 commonly employed in film printing apparatus are illustrated, but in this instance a loop is provided between the sprockets 10 and 9, i. e., between the picture record printer 4 and the sound record printer 7, so as to enable the sound record to be accurately registered with the picture record on the positive—in other words, to compensate for the distance between the sound reproducing attachment and the projection portion of a projection machine.

In accordance with my invention, I desire to blacken the positive at all portions of the sound recording part of the film where silence is desired, and I therefore mark in any suitable way the negative 5 at such portions and at the corresponding portions of the positive

subsequent to the usual printing operation, and expose the sound record strip thereof to intense light so as to secure a complete black area at that portion of the strip. This may be accomplished in any suitable way. In Fig. 2 I have shown one simple arrangement for automatically accomplishing it, wherein the negative film 5 is provided with notches 20 at the portion where a blackened positive is desired. A fixed contact member 21 is adapted to cooperate with a movable contact finger 22 which bears against the edge of the film. When a notched portion of the film is reached, the contact finger 22, following the edge of the film, falls into the notch preferably by yieldable pressure, e. g., by means of a spring 23, thereby making contact between the finger 22 and the terminal 21, thus closing the electric circuit of which the wires 24 form a part.

Referring again to Fig. 1, the wires 24 may form part of a circuit of a printing lamp 25, which wires are in connection with a suitable source of current supply so that when the lamp 25 is lit intense light is admitted to the positive 6 as long as the circuit is thus closed, thus effecting a complete exposure of that portion of the positive film corresponding to the notch on the negative film.

Many modified arrangements for accomplishing this purpose will readily occur to those skilled in the art without departing from the spirit and scope of my invention as defined in the claims, and, similarly, the same or similar types of marking of the film may be utilized for controlling other variable elements, such, for example, as variations in volume of sound reproduction, etc., and I therefore do not desire to be limited or restricted to the specific application of the invention to silencing the film at silent portions of the record; but, having now set forth the objections and nature of my invention, and having shown and described an arrangement for accomplishing the purpose thereof, what I claim as new and useful and of my own invention and desire to secure by Letters Patent is:

1. The method of preventing the production of ground noises from positive photographic films having sound records separated by unexposed portions, which comprises subjecting the positive film to light exposure at the unexposed portions corresponding to the silent portions of the negative to blacken those portions of the film.

2. The method of preventing the production of ground noises from positive photographic films having sound records separated

by unexposed portions, which comprises subjecting the positive film to light exposure at the unexposed portions corresponding to the silent portions of the negative during the printing from the negative on the positive to blacken those portions of the film.

3. In combination with a negative photographic sound record and a positive to be printed therefrom, and a printing light therefor, of an auxiliary printing light, and means controlled by the negative for controlling said auxiliary light.

4. In combination with a negative photographic sound record and a positive to be printed therefrom, and a printing light therefor, of an auxiliary printing light, means for confining the effect of said light to said positive, and means controlled by the negative for controlling said auxiliary light.

5. In combination with a negative photographic sound record having silent portions marked thereon, and a positive to be printed therefrom and a printing light therefor, of an auxiliary printing light, and means for controlling said auxiliary light by the markings on said negative.

6. In combination with a negative photographic sound record having silent portions marked thereon, and a positive to be printed therefrom and a printing light therefor, of an auxiliary printing light, means for controlling said auxiliary light by the markings on said negative, and means for confining the effect of said auxiliary light to said positive at the sound record portion.

7. In combination with a negative photographic sound record and a positive to be printed therefrom, and a printing light therefor, of an auxiliary printing light, a circuit therefor, and means for controlling said circuit by said negative.

8. In combination with a negative photographic sound record and a positive to be printed therefrom, and a printing light therefor, of an auxiliary printing light, a circuit therefor, means for controlling said circuit by said negative, and means for confining the effect of said auxiliary light to said positive at the sound record portion.

9. In combination with a negative photographic sound record having silent portions marked thereon, and a positive to be printed therefrom and a printing light therefor, of an auxiliary printing light, a circuit therefor, and means for controlling said circuit by the markings on said negative.

In testimony whereof I have hereunto set my hand on this 16th day of May A. D., 1924.

LEE DE FOREST.