Dec. 18, 1934. I. KITROSER 1,984,532

PROCESS OF SONORIZING GOFFERED FILMS AND PRODUCT THEREOF

Filed Oct. 13, 1930

Fig. 1.

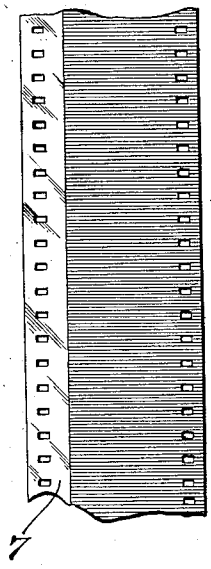


Fig. 2.

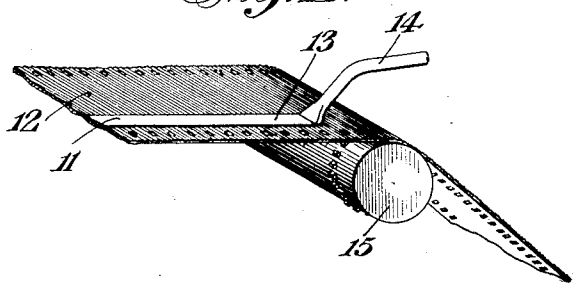


Fig. 3.

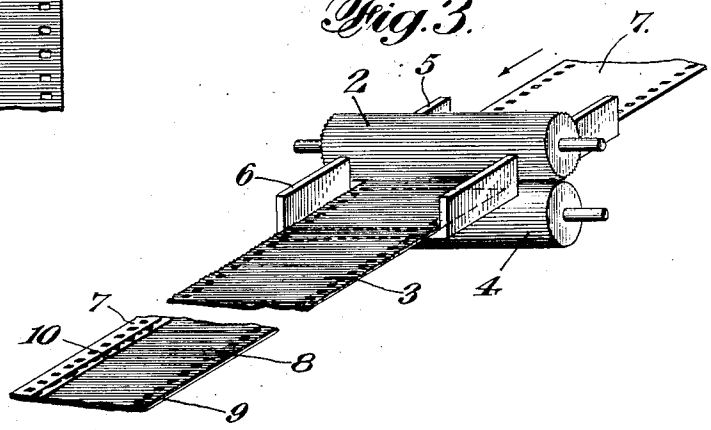
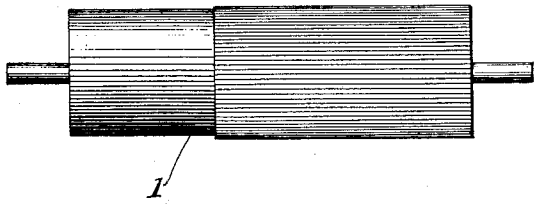


Fig. 4.



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PROCESS OF SONORIZING GOFFERED FILMS AND PRODUCT THEREOF

Isaac Kitroser, Paris, France, assignor to Keller-Dorian Colorfilm Corporation, New York, N. Y., a corporation of Delaware

Application October 13, 1930, Serial No. 488,307

12 Claims. (Cl. 88—16.2)

My invention relates particularly to a process of producing films having sound records and the product thereof, and applies particularly to goffered films adapted to be used in the production of colored motion pictures with sound.

The object of my invention is to provide a process, and the product thereof, whereby films of the above character may be obtained. Previously the synchronization of sound with motion pictures has been accomplished in various ways. One way of accomplishing this has been by means of two independent synchronized films, one of them carrying the sound record and the other the cinematographic image. Another method has been the synchronization of a rotating photographic disc with the film moving projecting mechanism. Such synchronization has been substantially the same whether ordinary films or colored films of the goffered base have been used, but when attempting to apply the sound record to a goffered film such as is used in the projection of colored motion pictures, difficult problems arise. For instance, if the sound record is recorded on the goffered base incidental sounds will arise on account of the periodic variations in the opaqueness due to the goffering. It is the object of my invention to overcome these difficulties.

While my invention is capable of being carried out in many different ways, and in connection with many different types of apparatus, I have shown only certain types of apparatus which may be used in connection with my invention in the accompanying drawing, in which—

Fig. 1 illustrates a portion of a film made in accordance with my invention;

Fig. 2 shows means by which the goffering may be removed on the portion of the film to which the sound may be applied;

Fig. 3 is a diagrammatic representation of an apparatus which may be used in the preliminary goffering of the film; and

Fig. 4 is a side elevation of an engraving cylinder which may be used in accordance with one embodiment of my invention.

In carrying out my invention a number of different modes of procedure may be followed but, generally speaking, I produce, in accordance with my invention, a goffered film having a band thereon which is free from goffering and which, therefore, presents substantially the same properties therein as in the case of ordinary film stock. A film of this kind may be produced either by goffering the film in a band thereon, that is, leaving a non-goffered band, as, for example, by using a cylinder 1 for the goffering which is engraved only at a portion thereof. Preferably, however, I proceed as follows in carrying out my invention: An engraved cylinder 2 will be provided in which the engraving thereon extends throughout the length of the cylinder or at least throughout a length greater than the width of a film 3 to be goffered thereby. This is of importance inasmuch as it is found that the extreme edges of the engraving are always defective and do not provide the perfection which is desirable and which is readily obtained at the center of the engraving cylinder. For instance, in order to goffer a film of 35 mm. width one must have at least a 60 mm. width of engraving of which only the central band of 35 mm. is employed for the goffering of the film. Accordingly, after the film 3 has been thus goffered by feeding it between the engraving cylinder 2 and the supporting cylinder 4, the film being accurately guided on both sides of the said cylinders, to prevent any right or left displacement thereof, by means of guides of any suitable type 5 and 6, a band 7 of the film will be subjected to a treatment for the removal of the goffering therefrom, thus leaving a goffered band 8 on which the colored motion pictures may be taken after the usual sensitized emulsion 9 has been applied to the other face thereof. These pictures so taken will be taken and exhibited in synchronization with a sound record 10 applied to the non-goffered band 7. The guiding of the film with great steadiness during the goffering is more easily accomplished because of the use of goffering in the form of transverse lines, as shown in the drawing (see application of Andre Oswald, Serial No. 307,601, filed September 22, 1928). Furthermore, it will be understood that the said film may be copied in accordance with the Keller-Dorian process and on the Keller-Dorian copying machine, so as to provide on similar films, in any desired way, the impression of the image to be produced in colors by projection, and that the sound thereon may be produced, if desired, by copying on the new film by contact with the film carrying the sound record. Also, it will be understood that the sound record may be produced on the original film in accordance with any desired system and in any desired way. However, it will be realized, of course, that the Keller-Dorian copying machine used for copying the image from the goffered band of the film will be provided with the desired required width by shutters, or otherwise

to accord with the width of the goffered band 8.

The goffering may be removed from the band 7 as above referred to, in a number of different ways. For example, this may be accomplished by polishing the same with the aid of polishing and abrading materials, for instance, in any desired way, until the goffering is removed up to the point where the image to be taken on the goffered band 8 begins. However, instead, the goffering corresponding to a band such as the band 7 may be removed, if desired, from this portion of the film by applying to a band 11 on a film 12 goffered in the same way as the film 3, a composition 13 from a supply nozzle 14, such as to fill in and thus remove the goffering from the surface of the film at the band 11, this being accomplished while the film is supported upon and fed forward by a sprocket wheel 15. This composition 13 may either be comprised of collodion or a solution of gelatin, or a cellulose material such as that contained in the film 12 itself, dissolved in volatile solvents of any desired character, or any other substance of a similar character may be used to be applied to the film in this way, although, preferably, a composition is used having the same solid constituents as the film itself, or at least having the same refractive index as the film. Such a film 12, having the band 11, may then be utilized in the production of sound motion pictures the same as the film 3 with the band 7, above referred to.

Still another method of accomplishing this, where the film is goffered across its whole width, is to produce the sound record on an ordinary non-goffered film of the appropriate width, that is to say, of a width similar to the width of the band 7 or the band 11, and then apply this to the goffered face of the goffered film in a location similar to that of the band 7 or of the band 11, with the interposition of an adhesive composition, such, for example, as a collodion or solution of the film itself, above referred to, thus completely filling in and eliminating the goffering of the composite film at the band where they are united together. This last mentioned method is of particular importance inasmuch as it permits the development of the two films separately which are used in making up the composite film. It will be understood that the images to be applied to the goffered film may be provided thereon at any desired stage in the production of the composite film or thereafter.

While I have described my invention above in detail I wish it to be understood that many changes may be made therein without departing from the spirit of the same, as set forth in the claims.

I claim:

1. A process of producing a goffered film for sound record pictures which comprises goffering the entire width of a film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating the goffered surface of a band thereof where a sound record is to be applied without disturbing the body of material remaining on the film.

2. A process of producing a goffered film for sound record pictures which comprises goffering the entire width of a film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating, by polishing, the goffered surface of a band thereof where a sound record is to be applied.

3. A process of producing a goffered film for sound record pictures which comprises goffering the entire width of a film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating, by filling in, the goffered surface of a band thereof where a sound record is to be applied.

4. A process of producing a goffered film for sound record pictures which comprises applying a sound record film to a film, the entire surface of which has been goffered.

5. A process of producing a goffered film for sound record pictures which comprises passing a film through guides while being goffered, by goffering the entire width of the film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating the goffered surface of a band thereof where the sound record is to be applied without disturbing the body of material remaining in the film.

6. A process of producing a goffered film for sound record pictures which comprises passing a film through guides while being goffered, by goffering the entire width of the film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating, by polishing, the goffered surface of a band thereof where the sound record is to be applied.

7. A process of producing a goffered film for sound record pictures which comprises passing a film through guides while being goffered, by goffering the entire width of the film by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating, by filling in, the goffered surface of a band thereof where a sound record is to be applied.

8. A process of producing a goffered film for sound record pictures which comprises passing a film through guides while goffering the entire width thereof by the gofferings of an impressing means having its gofferings overlapping the edges of the film and then eliminating the goffered surface of a band thereof where the sound record is to be applied.

9. A process of producing a goffered film for sound record pictures which comprises applying a sound record film to a film, the entire surface of which has been goffered, the sound record film having been provided with a sound record before the films are united.

10. A process of producing a goffered film for sound record pictures which comprises applying a sound record film to a film, the entire surface of which has been goffered, the sound record film having been provided with a sound record and the goffered film with the cinematographic images before the films are united.

11. A composite film having a goffered band and a non-goffered sound record area in the respective films, the films being united together.

12. A composite film having a goffered band and a non-goffered sound record area in the respective films, the films being united together by an adhesive composition adapted to fill in the goffering.

ISAAC KITROSER.