L. SAWYER.

FILM FOR CINEMATOGRAPHS AND THE LIKE.

APPLICATION FILED OCT. 14, 1918.

1,356,223. Patented Oct. 19, 1920.

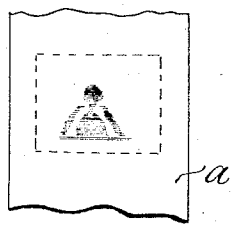


Fig. 1

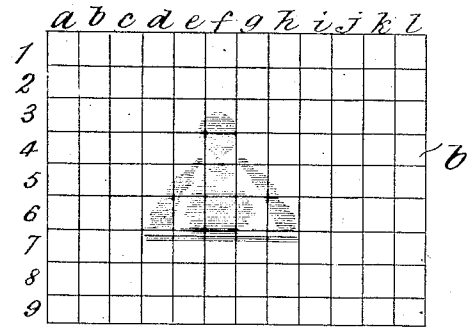


Fig. 2.

Fig. 3.

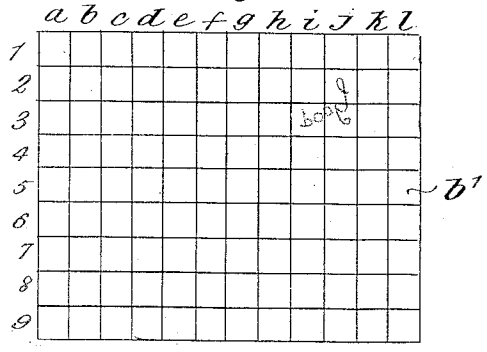


Fig. 4.

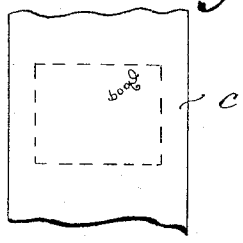
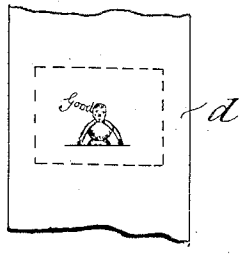


Fig. 5.



Witnesses;
Chas. E. Mutemann
H. D. Penney

Inventor:
Lyddell Sawyer;
By his Atty,
F. H. Richards.

UNITED STATES PATENT OFFICE.

LYDDELL SAWYER, OF LONDON, ENGLAND.

FILM FOR CINEMATOGRAPHS AND THE LIKE.

1,356,223. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed October 14, 1918. Serial No. 257,938.

To all whom it may concern:

Be it known that I, LYDDELL SAWYER, a subject of the King of Great Britain, residing at 19 Sloane street, London, S. W., 1, England, have invented certain new and useful Improvements in Films for Cinematographs and the like, of which the following is a specification.

This invention relates to films for cinematographs and the like and it has for its object an improved method for the production of positive films which in addition to the usual scene, also show words, sentences or descriptive or other reading matter.

This invention, as herein first described, generally consists in the production of a negative film bearing only the words, sentences, or descriptive matter, which word negative is then combined with the scene negative, and the positive film printed therefrom.

As a large number of negatives are taken per second showing the same or substantially the same scene, the words, sentences or the like, shown either as single words or groups of words, are repeated in successive negatives as often as they are applicable to said scene, or the particular phase of action depicted.

The wording may be simply descriptive, or it may be in the form of a dialogue between actors. The description, or the like, may be arranged to appear upon any desired part of the scene; for example, when in dialogue form, it may be located adjacent to and follow the movement of the speaker and appear upon as many consecutive photos as are occupied by the particular action accompanying the words, so that the apparent utterance of the words, singly or otherwise, and their appearance on the screen, are synchronous.

While I do not desire to limit myself to any precise method for producing, what may be termed, the word negative, in practice I prefer to use a glass or other transparent body upon which are printed written or otherwise indicated the words to be photographed, or the letters may be separate from the glass and secured thereto in the desired order to produce the reading matter, said letters being arranged in such a position and of such color as will render them not only distinct from the background of the scene, but also that they will be placed in the desired position upon the picture. If desired, the back of the transparent body may be painted, tinted, or otherwise treated to obtain a variety of softened blended or vignetted effects. The word film negative is not necessarily of the same length as the scene film negative, but may be made in suitable lengths, which are applied to the scene negative at such points thereon as is required.

While it is evident that the correct positioning of the wording upon the word negative may be secured in various ways, the following method is calculated to readily enable this to be effected.

A white screen, of about the same average size and proportions as that upon which the pictures are to be projected, is ruled horizontally and vertically, so that the said screen is divided into a number of squares. The squares horizontally are distinguished by letters and vertically by numerals.

The scene negative image is then projected upon this ruled screen measure, being, however, reversed, so that any point thereof occupies the same position as said point would occupy when the positive film is used for projection. The position of the reading matter and the space it is to occupy is now determined and noted by means of the positions of the horizontal and vertical lines represented by the aforesaid letters and numerals, as also the number of consecutive negatives upon which is to appear any one word or groups of words.

Another method which I find satisfactory in practice as an alternative one to that of throwing the image of the scene negative on to the large white screen, is as follows:—

I have the same system of horizontal and vertical lines ruled on to glass on the reduced scale of 1″x¾″—the same size as the original cinematograph negative. This ruled glass measure is placed on a suitable stand through which it can be viewed by

transmitted light. The scene negatives are then placed in front of this ruled glass measure and the word matter and the place it is to occupy is determined and noted for the purposes of being photographed in the same manner as that arranged in the case of projection on to the white screen.

The desired reading matter which is to be photographed may be written or otherwise indicated in the full size in which it is to appear in the cinematograph pictures, or if more convenient it may be written or otherwise indicated in any reduced size and then photographed on a proportionately increased scale so that it will still appear the same full size when ultimately displayed. The said reading matter in either case is placed against a suitable background, preferably made of black velvet, in such a position as measured by a duplicating measure screen. Such duplicating measure screens may be made in various ways, but in practice I use one formed of a wooden frame, measuring 2′0″x1′6″ inside. Across this frame I stretch white elastic cord, horizontally and vertically so that the cord forms 12 two inch horizontal squares and 9 two inch vertical squares which is a scale increase of 24 times the size of the original 1″x$\frac{3}{4}$″ cinematograph negatives. Of course the size of letters of this reading matter may vary considerably but I find $\frac{1}{2}$″ letters a convenient average size with this 2′0″x1′6″ screen. When such $\frac{1}{2}$″ letters are photographed down to 24 times less on the word film and are afterward thrown on to a 12′0″x9′0″ display screen they show as 3″ letters.

If owing to the difference of adjustment between the perforated sprocket holes in the words and scenes films, the positions of the reading matter requires still more definite registration, it may be obtained by various methods. For instance, word matter, at the position where it is placed to be photographed, may be dropped or raised to regulate proportionately any differences there may exist between the position of the sprocket holes in the scene negative film and the word negative film respectively, or again, the mask opening, regulating the exposure space in the cinematograph camera, can be arranged to be raised or lowered to regulate any such difference of position of the respective sprocket holes. The negative of the reading matter is then made, after removing the duplicating measure screen, by means of a cinematograph camera, upon the film.

Although for convenience of description of method I have referred to the word film herein described in its negative form and in which form it is probable that it will be most frequently utilized yet it is obvious that it can also be used under certain conditions as a positive film. In such positive form the word film can be used in combination with a scene positive film for the purpose of producing single film negatives or lantern projections, wherein both the scene and reading matter will still be shown in superimposed position.

If desired the "word" film may be used alone without any combination with a scene film, that is to say that in this case monologue, dialogue, or other reading matter will be projected upon the screen alone.

In order that the invention may be the better understood drawings are appended in which:—

Figure 1 shows a portion of a scene negative film having a figure thereon with which it is desired to associate the words.

Fig. 2 is a view to an enlarged scale showing the scene negative with a ruled screen applied thereto in order to ascertain the position of the words.

Fig. 3 is a view of a duplicating measure screen regulating and showing the correct position of the word before it is photographed upon the word film.

Fig. 4 is a view showing the word negative alone as it has been photographed after removal of the duplicating measure screen.

Fig. 5 is a view of a positive produced by the combination of the scene and word negatives.

Referring to the accompanying drawings *a* indicates the scene negative film bearing the figure and which negative is produced by photographing the figure scenes in the usual manner, care being exercised to select such a background as will enable the words to be seen distinctly. *b* indicates a ruled screen with the scene negative either projected on to it or seen through it as shown in Fig. 2. For convenience of illustration the screen is shown to a larger scale than the actual size of the picture on the negative. The horizontal and vertical lines on the screen are in the present instance respectively identified by the figures 1 to 9 and A to L. Either the ruled glass measure is applied to the scene negative, or the scene negative is projected on to the larger white screen measure and a suitable position for the word or words is determined and noted by the aid of the aforesaid ruled lines. A duplicating measure screen b^1 is now applied to regulate the position of the words which are to be photographed against a suitable background, and by this means a position is located against this background corresponding to that selected upon the figure negative. The screen b^1 is then removed and the word or group of words *c* is photographed by the aid of a cinematograph camera to produce the word film, the number of

photographs taken coinciding with the length of time calculated to be occupied by the character in speaking the word. In the case of a continuous monologue or dialogue the same process is repeated for each succeeding word or group of words by photographing them one after another upon a continuation of the same or a similar length of film. The words may be so photographed that they appear to be attached to the speaker or speakers as the case may be by the same process as that already described, and they can thus be shown as representing words spoken by any number of different characters who may appear in the scene.

After the production of the figure and word negatives the two are superposed and cinematically reproduced on a single film as a positive *d* as shown in Fig. 5.

Claims:

1. A process of producing cinematographic films, said process consisting in disposing a scene-film-view upon a locating screen; determining and noting within the scene where words are to be applied; applying upon a measuring screen, words in the locations determined from said locating screen; photographing the words as applied; and producing a positive from the scene and word view films.

2. A process of producing cinematographic films, said process consisting in successively disposing successive negative scene-film-views upon a locating screen; determining from each successive scene and noting within the scene where words are to be applied relative to parts of the scene; successively applying upon a measuring screen, having a dark background words in the location determined from said locating screen; photographing the words as each time applied, upon successive corresponding word view films; and producing a positive from the corresponding successive scene and word view films.

3. A process of producing cinematographic films, said process consisting in successively disposing successive scene-film-views upon a locating screen having crossed rulings; determining from each successive scene and noting within the scene and relative to the rulings and the sequence of the views, the successive different locations where words themselves are to be applied closely adjacent to the associated moving parts of the scene; successively applying upon a measuring screen, having measuring rulings similar to those of the locating screen, the words in the successive different locations and sequences determined from said locating screen; photographing the words as each time applied in the different locations upon successive corresponding word view films; and producing a positive from the corresponding successive scene and word view films in sequence.

4. A process of producing cinematographic films, said process consisting in successively disposing successive negative scene-film-views upon a locating screen having crossed rulings; determining from each successive scene and noting relative to the rulings, where words are to be applied; successively applying upon a measuring screen, having measuring rulings similar to those of the locating screen, words in the locations determined from said locating screen; removing the measuring rulings and photographing the words as applied; and producing a positive from the corresponding successive scene and word view films in sequence.

5. A process of producing cinematographic films, said process consisting in successively disposing successive scene-film-views upon a locating screen; determining from each successive scene and noting within the scene itself where words are to be applied adjacent to parts of the scene; successively applying upon a measuring screen, words in the successive locations and sequences determined from said locating screen; photographing the words as each time applied upon successive corresponding word view films; and producing a positive from the corresponding successive scene and word view films.

6. A process of producing cinematographic films, said process consisting in producing a scene film-negative; successively disposing the successive negative scene-film-views upon a locating screen having horizontal and vertical rulings; determining from each successive scene and noting within the scene and relative to the rulings and the sequence of the views the successive different locations where words are to be applied adjacent and relative to moving parts of the scene; successively applying upon a measuring screen, having a dark background and measuring rulings similar to those of the locating screen, words in the successive locations and sequences determined from said locating screen; removing the measuring rulings and photographing the words as each time applied, upon successive corresponding word view films; superposing the corresponding successive scene and word view films in sequence; and producing a positive therefrom.

7. A process of producing moving words in moving association with the movements of human characters on cinematograph films, said process consisting in photographically producing a scene view of moving human elements on a scene film; photographically producing moving words on a word film with the words moving synchronously and

in directions similar to the moving human elements on the scene film; and then combining the two films and printing therefrom a single composite film on which the scene view and words are shown simultaneously in associated movements, said words being so successively positioned on the word view film that they will move in sympathetic movement with and in direct contact with said human elements.

In testimony whereof I affix my signature in the presence of two witnesses.

LYDDELL SAWYER.

Witnesses:
J. BURTON,
F. KNELL.