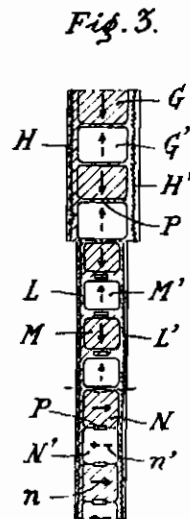
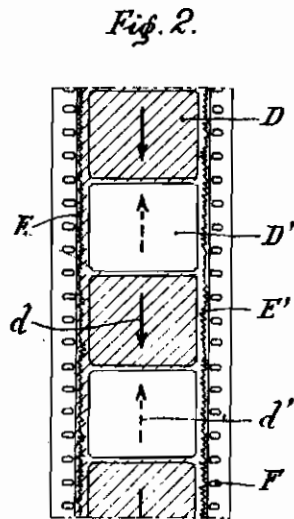
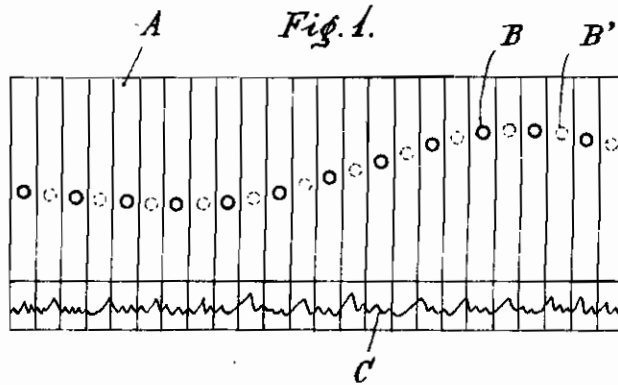


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SOUND TRACK OF FILM
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ALIEN PROPERTY CUSTODIAN

SOUND TRACK OF FILM

Mario Lamarchia, Milan, Italy; vested in the
Allen Property Custodian

Application filed March 31, 1941

It had already been proposed to combine for cinematographic purposes on one film-track only, two sound-subjects, i. e. two series of positives, and both the corresponding sound-records. To the purpose the images of both series are arranged on the film-track in such a way that each image of one of the two series follows alternatively an image of the other one, and the images of one series are reversed with respect to those of the other one, while both the corresponding sound-records are disposed on the sides of the track. At the same time the height of the images of each of the two series is reduced to half the usual height in order to avoid doubling the length of the track. This disposition, however, brings about a considerable inconvenience, i. e. the reduction of the height of the images to half the usual height requires modifying the international dimensions of the projection-screen or, otherwise, giving up the regularity and clearness of the images, as practically the generally adopted height of the film-images is already a minimum in this respect. On the other hand, such a conception could not be applied to substandard films, the images of which are already much smaller than those of normal size. Instead of making alternate reciprocally the images of both series, it had also been proposed to make them reciprocally penetrate, namely by means of partitioning each image into several tracks, suppression of one track between two tracks, arrangement of the tracks of one image of one series between the tracks of an image of the other series. In this case, however, a special apparatus-set has been expedient for the taking as well as for the projection of films, whereby the international systems are inadmissably upset and cost is increased.

The scope of this invention is to produce a sound-film, containing two different subjects, i. e. two series of positives and two sound-records avoiding however the aforesaid inconveniences.

According to the invention the images of the two series have the usual size and integrity but in each series or subject the number of images is reduced to half the usual number, by means of leaving out alternatively every second image in each series.

So also the sound-negatives already existing in trade are apt for the production of the film, the only difference being that in the production of positives on the film each second original negative is utilized alternatively. Also a customary device may answer the purpose of projecting the film the only difference being that each image is

exposed double the usual period with an intermitting frequency which is half the usual, and a pitch which is double the usual; thus accelerations in the movement of scenes is avoided and each sound-track keeps its rolling-speed having the usual length.

One might think that by leaving out each second image inconveniences might be caused in the optical perception of the images on the screen, but, as a matter of fact, this does not happen as has been shown by most careful practical experiments and as has also been proved by the following considerations. Because of the longer exposure there is no larger intermission between each image and the following than is the usual one so that the persistence of the images on the retina of the eye is not the cause for seeking a compensation by a longer period of exposure than is the usual one. Moreover the differences in the positions of the sequences after the omission of every second image are so small that the substitution of one sequence for the next does not constrain the eye to any greater effort than does correspond to its faculty of assimilation so that the eye does not undergo any disturbance whatever.

On the contrary the invention has the most important advantage that it applies not only to films of big or normal size but also in particular to films of small or narrow size, provided that the size of the images in all cases remain exactly the customary one. When the invention is applied to substandard films something important must be observed, as in this case the necessity of saving the length of the strip is of great importance, as there must be combined on one only track two sound-records. It goes without saying that in no case for the scope of such saving the pure and simple suppression of every second image may be performed as, then, the absolutely necessary length of the sound-record would be lacking.

In the annexed drawing represent:

Fig. 1 a schematic diagram of the invention;

Figs. 2 and 3 some examples of realization;

In Fig. 1 the vertical tracks A represent the images or sections of a usual film, while the circles B, B' represent schematically the successive sequences fixed in these images. The circles B in continued line represent those sequences that are stuck to for the formation of one series of the planned film-track while the dotted circles B' are the omitted sequences. It is obvious that by leaving out the images B' the movements of things and persons do not lose anything of their character and remain quite clear.

Even the optical connection remains in existence, because of the great number of sequences which still do exist each second after omitting half of them, as has already been pointed out.

As a matter of fact the images of a sound-film are of such a number, and they have such a running-speed that 24 images are projected each second. According to the invention only 12 images are projected each second. It results, however, in view of the usual speed of the movements of persons or things, that 12 sequences each second give images that are not sensibly different from one another. If sensible differences would exist there would be so swift movements that in nature too, in direct view the eye could not sharply follow them. Moreover in Fig. 1 is indicated with C the sound-track that keeps its normal speed, i. e. 24 images each second.

Fig. 2 shows a film-strip of standard size for the usual sound-projection apparatuses. D indicates the images of one of the two series and E the corresponding sound track, while D' and E' represent the images and the sound-track of the other series. For the sake of clearness the images of one series are lined together with the corresponding sound-track, and the direction of the

images (which are alternatively inverted) is indicated by the arrows d, d' . The images of one series are placed in the empty spaces of the other series caused by the suppression of the second images. F indicate the holes of the film-strip for the advancement-gearing.

In Fig. 3 a substandard film is concerned. In the upper part of this figure the images G, G' of the two series have just the same dimensions as usually, and, therefore, is the strip somewhat broader than usually in order to bear on its sides the two corresponding sound-tracks H, H'. In the middle and lower part of the figure the track has the usual breadth, this being advisable for the use of the sensible strips standardized by trade. For the application of the sound-track L, L' a corresponding track of the side-edges of the images M, M' is given up, which on the other hand would be very narrow, as represented in the middle part of the figure or better the images N, N' are turned 90° as compared with the usual direction as is shown by the arrows n, n' giving up a narrow track of the edge around each image. P indicates the advancement-holes.

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