C. F. JENKINS.

VIEW CHANGING DEVICE.

APPLICATION FILED DEC. 12, 1913.

1,153,110. Patented Sept. 7, 1915.

Fig. 1.

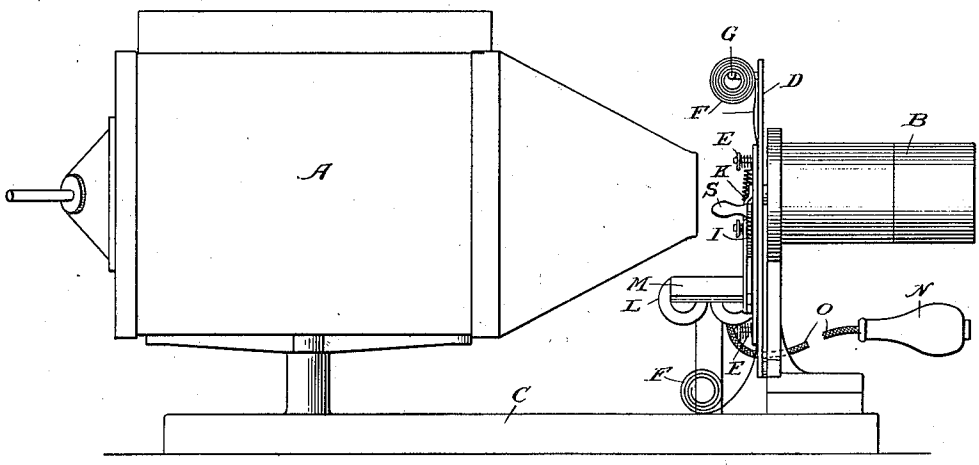


Fig. 2.

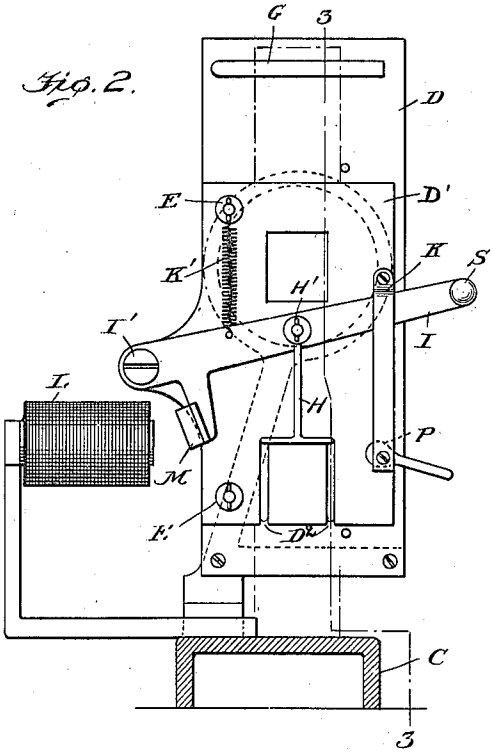


Fig. 3.

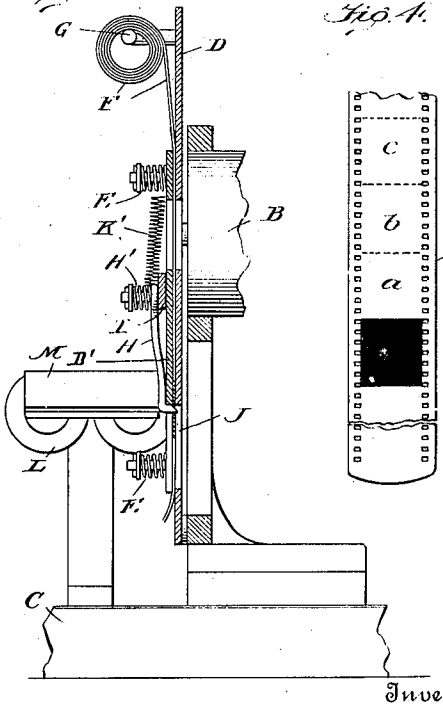


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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VIEW-CHANGING DEVICE.

1,153,110. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed December 12, 1913. Serial No. 806,167.

To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in View-Changing Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to projecting a series of pictures other than motion pictures, upon a screen or the like.

It is usual to provide many so-called "slides" and to have the pictures thereon projected in succession as desired by a lecturer, for example, the projecting being secured by the acts of a distant lantern operator who is advised, in one way or another when changes of views upon the screen are desired. This common method involves employing such operator, providing him with a large mass of expensive and fragile slides and relying upon him to change slides quickly and to keep the views in proper sequence and right side up. Practically, it further involves, as all are aware, frequent errors and delay, as well as transporting very heavy packages of such slides, and also serious loss through breakage, and often breakage of views which cannot be replaced, whatever one might be willing to pay.

The object of this invention is to eliminate all the evils just suggested. To this end, I place upon a film strip a succession of pictures, preferably including in desired sequence all the pictures to be shown during an entire lecture, or at least all that relate to the same place, country, or general topic, and provide means whereby the lecturer himself controls the feed of such strip in the more or less distant projecting apparatus. The lecturer, usually but not necessarily near the screen, may thus instantly change the view presented and with no mistake in time, sequence, or position, and, moreover, may have all the views usually desired for a single lecture in a light package which could readily be carried in the pocket.

In the accompanying drawings, Figure 1 shows my devices in side elevation. Fig. 2 is a view looking from the left in Fig. 1, the devices shown in the left portion of that figure being omitted. Fig. 3 is a section on the line 3—3, Fig. 2. Fig. 4 shows a portion of a picture-bearing film strip.

In these views A represents a projecting lantern and B a lens tube alined therewith, neither involving any novelty herein claimed, and C any suitable base supporting the other parts.

D represents a fixed vertical plate interposed between the lantern and lens tube and provided with a central aperture for the passage of a light beam to the lens tube. On this plate is mounted a parallel contiguous plate D′, having an aperture registering with that of the plate D, and itself gently urged toward the fixed plate by springs E. A coiled film strip F is loosely mounted above the plates upon a shaft or pin G and has its free end portion carried downward between the two plates where it is held by friction when no feeding force is applied. The film, which bears pictures *a*, *b*, *c*, etc., and is marginally perforated, is fed at proper times by means of a fork H having inwardly bent ends and pivoted upon a lever I which swings about a pivot at I′ on the main plate and is normally held upward against a stop K at the upper limit of its path by a spring K′. The inwardly bent ends of the fork work in slots D^2 in the plates and engage in the perforations of the film strip. The lever I is swung downward, against the pull of the spring K′ by an electromagnet L acting upon an armature M carried by an arm of the lever whenever the normally open circuit of the magnet is closed by pressing upon the button of a common contact device N adapted to be held in the hand of an operator or lecturer and connected with the magnet coils by the usual conducting cord O. When the button is released breaking the circuit, the spring K′ swings the lever upward and the fork which has suitably beveled upper faces, moves out of the perforations and slides upward over the surface of the film strip until it is arrested by the stop K when it moves inward again engaging the film. Obviously, the distance through which the lever and fork move depends upon the location of the point where the lever's descent is arrested, and this point is determined by an adjustable cam P which permits slight variation at the will of the operator to compensate variations in the positions of the pictures, in different films, with respect to the film perforations.

The film strip may have at its ends the usual opaque portions which cut off the light

when they cover the plate apertures. The mounting of the film may be varied but when it is simply mounted upon the pin G as shown, its lower free end portion may be permitted to coil by its own resiliency after passing the exposure point. In order that the same machine may be used when the film is to be fed without the aid of the magnet, or manually, the lever I is provided with a convenient handle at S.

When the magnet or analogous means for operating from a distance is used, no attendant at the lantern is needed, the lecturer himself being able to change the pictures from time to time instantly and with no possibility of error of any kind. Each change however, requires a positive act upon his part, and there is never such rapid change as to cause the successive pictures to coalesce in any degree upon the retina, as in motion pictures. The intervals between successive pictures are dependent upon the volition of the lecturer, but were the times or intervals fully predetermined, such would not necessarily be the case. It may further be observed that it is only necessary that each picture be thrown upon the screen at such point that it can be fully seen and at approximately the proper time, there being here no reason for accuracy, which is indispensable in motion pictures.

What I claim is:

1. The combination with projecting apparatus provided with means for guiding a film strip across the path of a projecting beam, of a film strip guided by said means and bearing a succession of regularly spaced pictures of different subjects, and means whereby a suitable movement of an operator may cause the strip to advance longitudinally approximately a picture's width only for each such movement, and a manually adjustable stop for arresting each film step at the proper point for adjusting the length of the advancing steps.

2. The combination with means for throwing a picture projecting beam upon a screen, of an apertured plate in the path of the beam, a second plate for yieldingly pressing loose film over the aperture in the first plate, a swinging lever, a film-engaging fork carried by the lever, a spring for yieldingly holding the fork in engagement, an electromagnet arranged to swing the fork in film feeding direction, a spring resisting the movement of the lever, and a distant device controlling the circuit of the electromagnet.

3. The combination with means for projecting a light beam upon a screen, of a fixed interposed plate having an aperture in the path of the beam, a second plate for yieldingly pressing a picture bearing film over said aperture and itself provided with fork guiding slots, a film engaging fork guided by said slots, devices for advancing the fork by single steps, automatic means for retracting the fork, and distant manually operable means for at will causing a single step of the fork.

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

CHARLES FRANCIS JENKINS.

Witnesses:
ROBERT CRAIG GREENE,
JAMES L. CRAWFORD.