

PATENT SPECIFICATION



Convention Date (Germany): April 3, 1935.

460,704

Application Date (in United Kingdom): April 29, 1935. No. 12755/35.

Complete Specification Accepted: Jan. 29, 1937.

COMPLETE SPECIFICATION

Improvements in or relating to Optical Projecting Apparatus

I, MARIO SASSOLI, a subject of the King of Italy, of Via Monte Napoleone, 22, Milan, Italy, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to optical projecting apparatus for use with films of the kind provided with two rows of images. It is the practice with such films to project one image from each row successively

Figure 2 is a transverse vertical section on line 2-2 of Figure 1.

Figure 3 is a view of the driving mechanism from below,

Figure 4 is a plan view of the apparatus with the cover removed, and

Figure 5 is a detail elevation of the rear wall of the projection chamber.

The projection apparatus consists of a casing 1, constructed of electrically non-conducting material and having an upper and a lower lens or system of lenses 2, 3

CORRECTION OF CLERICAL ERROR

SPECIFICATION NO. 460,704

The following correction is in accordance with the Decision of the Assistant Comptroller, acting for the Comptroller-General, dated the fourth day of May, 1948:—

Page 1, lines 1 and 2, for "a subject of the King of Italy" read "a Citizen of the Argentine Republic".

THE PATENT OFFICE,
1st July, 1948.

DS 67820/2/3194 100 6/48 R

screen at a time, such means comprising a shutter actuated in timed relation with the film feed mechanism to cause said shutter to cover and uncover the projecting lens systems and thereby to project an image from each row alternately.

It is the object of this invention to provide an improved yet simple projection apparatus in which an image is projected from each of two rows of images successively and to this end, instead of intercepting the picture-bearing light beams alternately, I provide a separate source of illumination for each of the lens systems and means actuated in synchronism with the feed of the film to illuminate each of said sources successively, the other remaining extinguished. The sources of illumination preferably comprise incandescent electric lamps the circuits of which are controlled by a rotary switch actuated by the film feed mechanism.

A constructional example of the invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a longitudinal vertical section of the apparatus.

[Price 1/-]

incandescent lamp 13 of the apparatus. 10 and 10a are contact arms for the lamps 11, 13 respectively, and 21, 21a designate a pair of contact plates, one in each lamp circuit, the connection of which will be later described. 12 and 14 are respectively upper and lower angular reflectors arranged to the rear of the lamps 11, 13. The upper lamp 11 is carried in a holder 11a secured to the partition 6, and the lower lamp 13 in a holder 13a also secured to said partition. The cover, designated 1a, which is also constructed of electrically non-conducting material, may be constructed interiorly to act as a light reflector.

15 is a recess provided in the wall of the light chamber to hold a feed sprocket 16, the teeth of which carry along the film band arranged to travel between it and the partition 6. Rotation of the roller 16 causes the film to pass across the projection apertures. 17 designates generally the driving mechanism, which is shown as comprising a clockwork motor actuated by a spring, this mechanism being of any suitable known construction

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This invention relates to optical projecting apparatus for use with films of the kind provided with two rows of images. It is the practice with such films to project one image from each row successively on to the screen, the correspondingly placed images in the two rows showing the objects or figures to be projected in different positions to produce the effect of movement.

In hitherto known apparatus for projecting films of this kind a lens system or objective has been provided for each of the two rows of images on the film the projection chamber being sub-divided in a light-tight manner to isolate the two lens systems. Means have also been provided in such apparatus for intercepting alternately the image-bearing light beams so that only one image is projected on to the screen at a time, such means comprising a shutter actuated in timed relation with the film feed mechanism to cause said shutter to cover and uncover the projecting lens systems and thereby to project an image from each row alternately.

It is the object of this invention to provide an improved yet simple projection apparatus in which an image is projected from each of two rows of images successively and to this end, instead of intercepting the picture-bearing light beams alternately, I provide a separate source of illumination for each of the lens systems and means actuated in synchronism with the feed of the film to illuminate each of said sources successively, the other remaining extinguished. The sources of illumination preferably comprise incandescent electric lamps the circuits of which are controlled by a rotary switch actuated by the film feed mechanism.

A constructional example of the invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a longitudinal vertical section of the apparatus.

[Price 1/-]

Figure 2 is a transverse vertical section on line 2-2 of Figure 1.

Figure 3 is a view of the driving mechanism from below,

Figure 4 is a plan view of the apparatus with the cover removed, and

Figure 5 is a detail elevation of the rear wall of the projection chamber.

The projection apparatus consists of a casing 1, constructed of electrically non-conducting material and having an upper and a lower lens or system of lenses 2, 3 respectively. A vertical slot 4 at one side of the casing serves to enable the film band to be passed between a light chamber and a projection chamber. 5 is a lever for controlling the spring motor, 6 a partition of electrically conducting material between the projection chamber and the light chamber, 8 a wall interposed in the projection chamber, by which the said chamber is divided into upper and lower compartments corresponding to upper and lower windows 7 and 9 in the partition 6, one chamber being on a level with an upper electric incandescent lamp 11 and the other on a level with a lower electric incandescent lamp 13 of the apparatus. 10 and 10a are contact arms for the lamps 11, 13 respectively, and 21, 21a designate a pair of contact plates, one in each lamp circuit, the connection of which will be later described. 12 and 14 are respectively upper and lower angular reflectors arranged to the rear of the lamps 11, 13. The upper lamp 11 is carried in a holder 11a secured to the partition 6, and the lower lamp 13 in a holder 13a also secured to said partition. The cover, designated 1a, which is also constructed of electrically non-conducting material, may be constructed interiorly to act as a light reflector.

15 is a recess provided in the wall of the light chamber to hold a feed sprocket 16, the teeth of which carry along the film band arranged to travel between it and the partition 6. Rotation of the roller 16 causes the film to pass across the projection apertures. 17 designates generally the driving mechanism, which is shown as comprising a clockwork motor actuated by a spring, this mechanism being of any suitable known construction

and only diagrammatically illustrated in the drawings. The spring is adapted to be wound up by means of a key fitting over a stem 18. 19 is a pawl for the driving mechanism being actuated by a rocking of the control lever 5. 20 is a frosted glass screen arranged in front of the lamps and to the rear of the partition 6 so as to provide a space for passing of the film. 22 is a contact plate for one pole of a source of electric current for supplying the lamps, the said plate being connected with the lamp holders 11a, 13a and with one pole of each lamp through the partition 6 and contact arm 22b. The other contact plate for the source of current is designated by the reference 22a and is adapted to be electrically connected with the other pole of each lamp alternately through the control lever 5, which abuts against an extension of said contact plate 22a when it is operated to release the driving mechanism, and through opposed cams 23, 24 of a rotary cam switch electrically connected through the clockwork mechanism with the pawl 19 which turns to maintain contact with the lever 5. The rotary cam switch is mounted on the spindle of a gear driven from the clockwork mechanism and during operation the respective lamp circuits are completed in synchronism with the feed of the film through the cams 23, 24, and through contact plates 21, 21a which are formed, as shown in Figure 3, to engage and co-operate with the switch cams and are in electrical connection with the contact arms 10, 10a.

In operation the apparatus works in the following manner:

When the control lever 5 is swung in a counter-clockwise direction, as viewed in Figure 3, the clockwork mechanism is set in operation and rotates the sprocket 16 and the switch 23, 24. The film is accordingly fed through the apparatus and the lamps 11, 13 are alternately illuminated, through circuits first from pole 22a, clockwork mechanism, switch cam 24, contact plate 21, contact arm 10, lamp 11, lamp holder 11a, partition 6, contact arm 22b to contact 22 and afterwards from pole 22a, clockwork mechanism, switch cam 23, contact plate 21a, contact arm 10a, lamp 13, lamp holder 13a, partition 6, contact arm 22b to contact 22, respectively, synchronously with the feed of the film so that an image is projected from each row in turn. Return of the lever to the position shown in Figure 3 causes the pawl to re-engage and stop the driving mechanism and positively breaks the circuit.

Provision is made in the base of the casing for the housing of a dry battery, such as a flash lamp battery, for supplying current to the lamps. Alternatively, the lamps may be fed from the mains through a transformer.

When a film of the kind hereinbefore referred to is inserted in the slot 4 and is driven by the feed roller 16 across the projection windows, alternate projection of an image of the upper line and one from the lower line is produced owing to the alternate lighting of the two lamps, whereby a cinematographic effect is produced.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Optical projecting apparatus for use with films of the kind having two rows of images, wherein a separate lens system and source of illumination are provided for each of said rows of images, each of said sources being illuminated successively while the other remains extinguished by means actuated in synchronism with the feed of the film, whereby an image is projected alternately from each row.

2. Apparatus in accordance with claim 1, wherein the means for successively illuminating the light sources comprises a rotary switch mechanically connected with the means for feeding the film and adapted to co-operate successively with a pair of contacts, one for each source of illumination.

3. Apparatus in accordance with claim 1, wherein the lens systems and sources of illumination are located within projection compartments separated from each other in a light-tight manner.

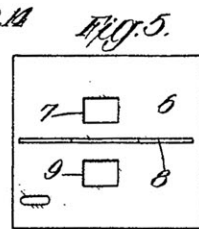
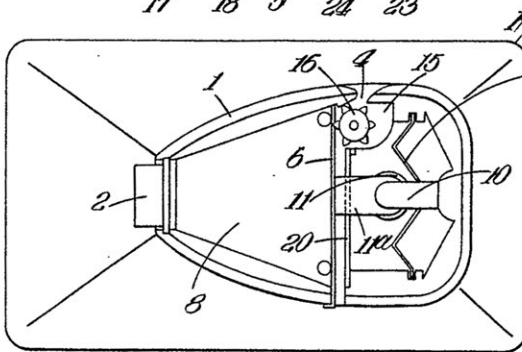
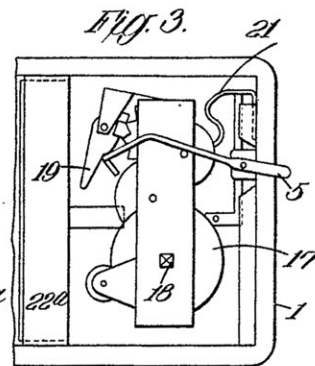
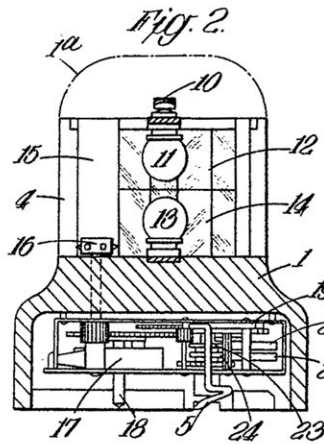
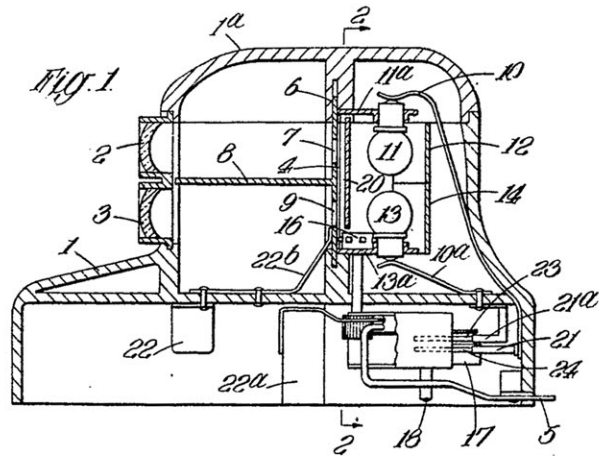
4. Apparatus in accordance with claim 1, 2 or 3, wherein light reflecting surfaces are provided in the body and/or a detachable body cover.

5. Optical projecting apparatus having its parts arranged, combined and adapted for operation substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 29th day of April, 1935.

HASELTINE, LAKE & CO.,
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England, and
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Agents for the Applicant.



[This Drawing is a reproduction of the Original on a reduced scale.]