Jan. 24, 1933. A. L. V. C. DEBRIE 1,895,026

FILM FEEDING DEVICE IN CINEMATOGRAPHIC VIEW TAKING APPARATUS

Filed Oct. 20, 1930

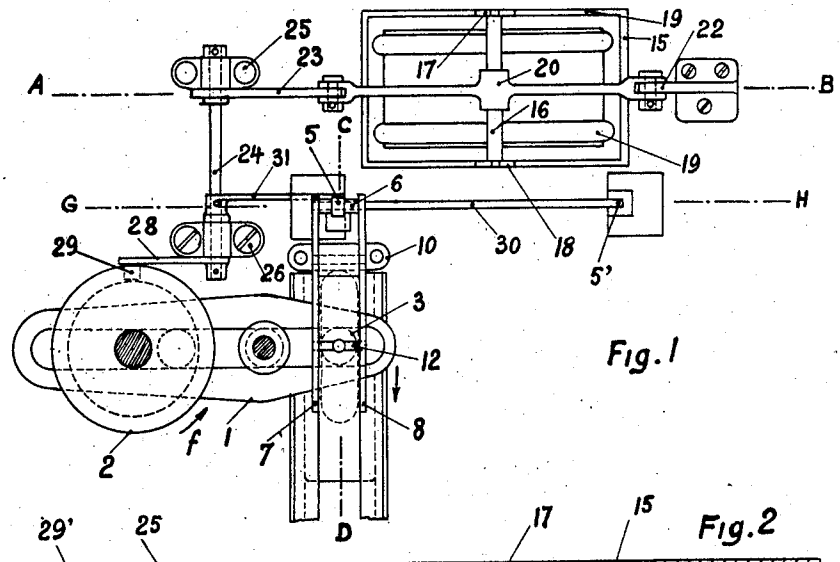


Fig. 1

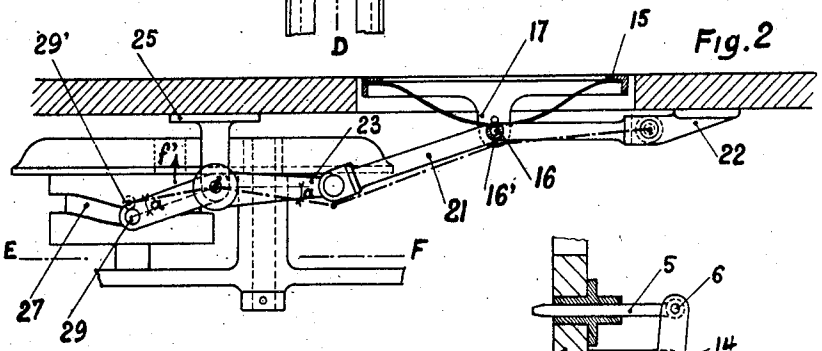


Fig. 2

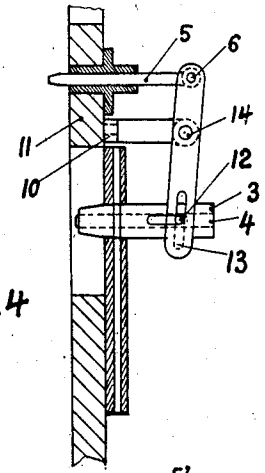
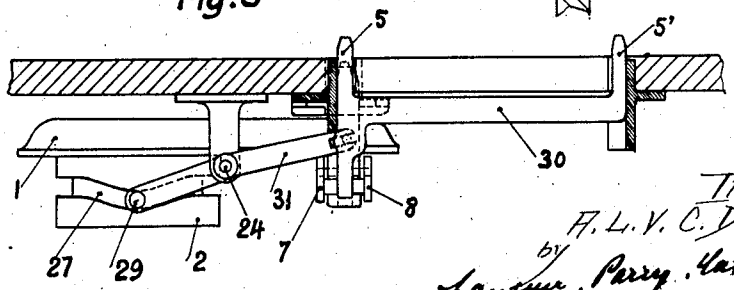


Fig. 4

Fig. 3



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UNITED STATES PATENT OFFICE

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FILM FEEDING DEVICE IN CINEMATOGRAPHIC VIEW TAKING APPARATUS

Application filed October 20, 1930, Serial No. 490,047, and in France December 9, 1929.

The film is fed in cinematographic view taking apparatus through the agency of clutches engaging the film perforations so as to move the film downwards through the height of one picture and then release it after which they are returned backwards through the same amount for reengaging the film perforations. During the exposure of the film, the latter is held down by registering pins entering the film perforations while a film-pressing device bears against the film from which it is held away during the movements of the film.

The clutches are controlled by a rotary plate controlled by any suitable means such as those described in my prior specifications.

My invention has for its object a common control device for the registering pins and the pressing device actuated by the device controlling the longitudinal motion of the clutches. The advancing and receding motion of the clutches perpendicularly to the film is controlled by the registering pins which are independent of the longitudinal movement of the clutches. The pressing device is carried by a rocking shaft parallel to the film and actuated by the clutch control plate providing through suitable means the advancing and receding motion of the registering pins.

On accompanying drawing given by way of example:

Fig. 1 is a cross-section along line EF of Fig. 2,

Fig. 2 is a plan view from the underside of the pressing device,

Fig. 3 is a cross-section along line AB of Fig. 1,

Fig. 4 is a cross-section along line CD of Fig. 1.

The clutch control device comprises a transmission lever 1 disposed between the control plate 2 and the sleeve 3 guiding the clutch 4. This allows the clutch to be moved downwards through the height of one image at a comparatively considerable speed and is returned thereafter upwards at a comparatively slow speed. The registering pin 5 is pivotally carried by the pivot 6 serving also for staying the two levers 7—8 of a lever 9 pivotally secured to a support 10 carried by the casing 11. The clutch 4 carries two lateral tenons 12 passing through parallel grooves 13 provided in the arms 7, 8. It is apparent that if the axis of the pivot 14 of the lever 9 and the axes of these grooves are in a same plane, the registering pin disengages the film during the movement of the clutch during which the latter engages a perforation of the film for driving the latter downwards. During the return motion of the clutch, the latter disengages the film and the registering pin reengages it for holding the film down.

The pressing device comprises the usual frame 15 pivotally secured to the control shaft through the lugs 17, 18 formed on the edges of the frame. This shaft 16 is mounted in a bushing 20 formed on a crank lever 21. This lever is pivotally carried with sufficient play by the lug 22 secured to the casing and is pivotally secured on the other hand to the arm 23 carried by the rocker shaft 24. This shaft 24 is carried in bearings 25, 26 secured to the casing and carries an arm 28 provided at its end with a tenon 29 engaging a cam shaped groove 27 formed on the periphery of the control plate 2.

The groove has the shape illustrated in Fig. 2 wherein the pressing device is shown as bearing against the film. The control plate rotates in the direction of the arrow *f*. The parts are shown during the period wherein the film advances. As the plate 2 rotates the tenon 29 enters gradually the position 29′ under the action of the cam-shaped groove 27. When the tenon has reached said position 29′, the shaft 24 will have rotated through an angle *a* in the direction of the arrow *f′* together with the arm 23 whereby the vertical shaft 16 enters its position 16′ so as to release the film from the pressing device. During these movements, the lever 31 directly controlled by the shaft 24 causes the registering pin 5 to advance or to recede, said pin engaging a film perforation when the pressing device becomes operative and disengaging said perforation when the pressing device recedes. Of course the cam-shaped groove 27 is designed so as to release the film from the pressing device and from the reg-

istering pin at the moment when the driving clutch engages a perforation of the film. Obviously I may use a series of registering pins on either side of the film. I may in particular connect the registering pin 5 through the transversal connecting bar 30 with the registering pin 5′ disposed in the same horizontal plane and which is adapted to engage perforation on the opposite edge of the film.

What I claim is:

1. In a cinematographic view taking apparatus, the combination of a control plate, film driving pins adapted to intermittently advance the film, means whereby the control plate controls the reciprocating longitudinal movement of the driving pins, a film pressing device, registering pins adapted to engage perforations in the film, a rocking shaft controlling the pressing device, an arm carried by said shaft, a projection thereon, cam-shaped means carried by the control plate engaging said projection for controlling the angular position of the projection, arm and shaft arrangement, means whereby the shaft is adapted to operatively engage the registering pins and pressing device with the film during the periods when the driving pins do not advance the film and to disengage same in the intermediary period, a lever adapted to pivot round a stationary point in a plane perpendicular to the film and pivotally carrying at its free ends the driving pins and the reciprocating pins respectively and means for allowing the driving pins to be moved parallel to the displacement of the film by the first mentioned means without disturbing the lever.

2. In a cinematographic view taking apparatus, the combination of a control plate, film driving pins adapted to intermittently advance the film, a rocking lever, a slot provided inside said lever, a crank pin carried by the control plate and engaged in said slot, means whereby the rocking lever controls the reciprocating longitudinal movement of the driving pins, a film pressing device, registering pins adapted to engage perforations in the film, a rocking shaft controlling the pressing device, an arm carried by said shaft, a projection thereon, cam-shaped means carried by the control plate engaging said projection for controlling the angular position of the projection, arm and shaft arrangement, means whereby the shaft is adapted to operatively engage the registering pins and pressing device with the film during the periods when the driving pins do not advance the film and to disengage same in the intermediary period, a lever adapted to pivot round a stationary point in a plane perpendicular to the film and pivotally carrying at its free ends the driving pins and the reciprocating pins respectively and means for allowing the driving pins to be moved parallel to the displacement of the film by the first mentioned means without disturbing the lever.

In testimony whereof I have signed my name to this specification.

ANDRÉ LEON VICTOR CLEMENT DEBRIE.