O. SCHWIMMER.

MOTION PICTURE MACHINE.

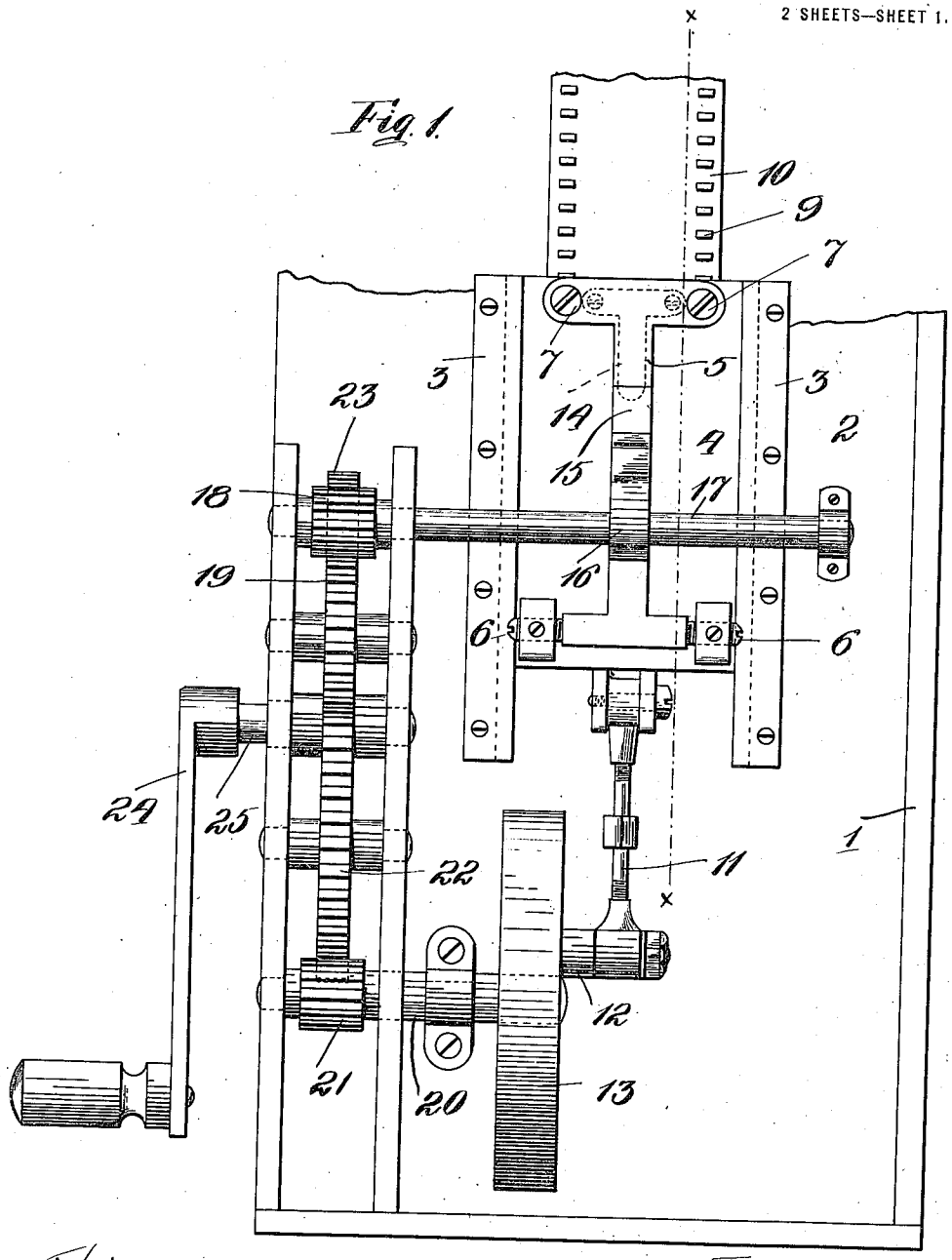
APPLICATION FILED NOV. 4, 1912.

1,156,824.

Patented Oct. 12, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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MOTION PICTURE MACHINE.

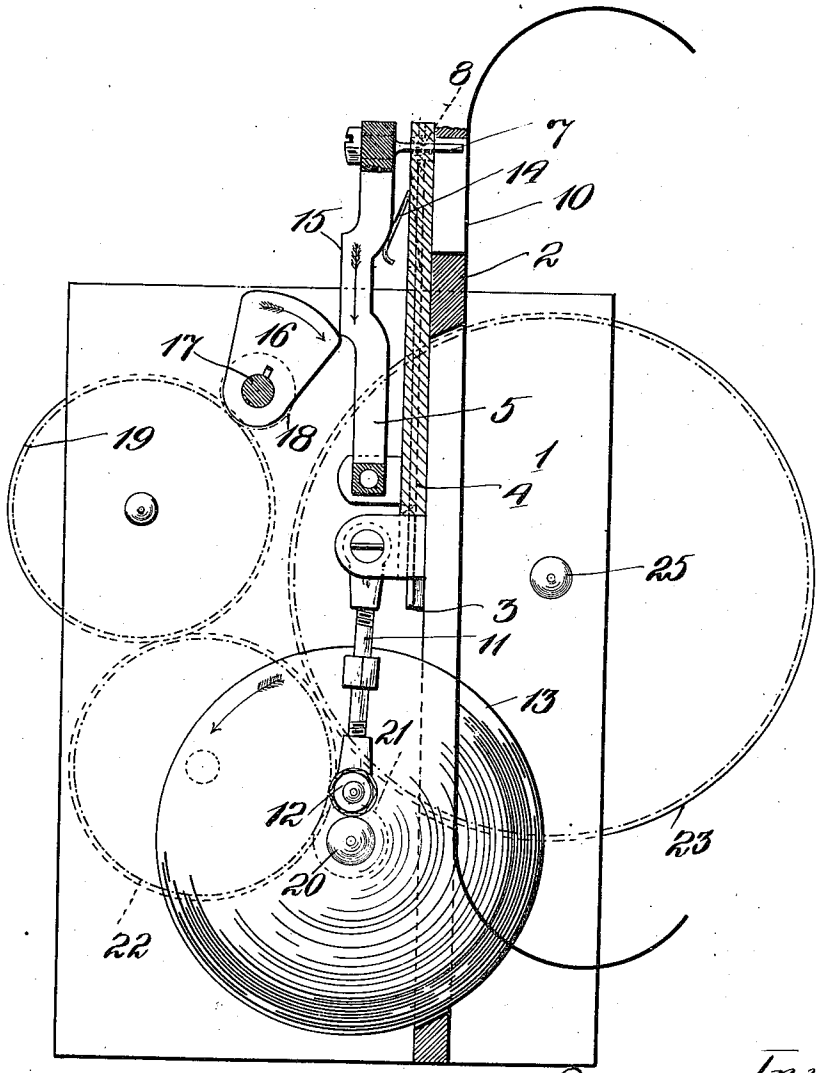
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

OSCAR SCHWIMMER, OF LOS ANGELES, CALIFORNIA.

MOTION-PICTURE MACHINE.

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To all whom it may concern:

Be it known that I, OSCAR SCHWIMMER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a certain new and useful Improvements in Motion-Picture Machines, of which the following is a specification.

My invention relates to an improvement in motion picture machines, and has particular reference to an improved mechanism for intermittently moving the film in taking, reproducing and printing pictures.

Objects of this invention are to provide a mechanism in which the intermittent movement of the film either in advance or reflex direction is regularly and positively accomplished in the absence of all hammering; the friction incident to the movement of the operating parts reduced to a minimum; the vibrations eliminated; the adjustment of the variously distanced perforations of the commercial films readily effected, and in which the periods of movement and rest are respectively the shortest and longest.

With these and other objects in view, this invention consists of the features, details of construction and combination of parts described in connection with the accompanying drawings and then more particularly pointed out in the claims.

In the drawings, Figure 1, is a rear elevation, and Fig. 2, is a sectional elevation on lines x—x, Fig. 1.

Referring to the drawings, 1, designates a casing, on a wall 2, of which is secured gibs 3, between which is slidably mounted a plate 4, carrying a bar 5, pivotally supported thereon by adjustable pins 6. Said bar 5, is provided with a plurality of adjustable tines 7, arranged to project through enlarged openings 8, in said plate 4, and engage at certain intervals the perforations 9, in a film 10. The bar 5, and its tines, commonly known as a rake, is reciprocable with said plate 4, by an adjustable rod 11, connecting the bottom of said plate 4, with a crank 12, on a fly wheel 13.

The adjustable connection between the fly wheel 13 and plate 4 is made for the purpose of determining the spacing between the pictures of the film, in order that variations in such spacings may be accurately compensated for. In nearly all makes of machines for making kinetescopic pictures, the spacing between the pictures is different, that is to say, the spacing falls varying between the perforations in the films. A machine, therefore, which does not space in precise accordance with the spacing made by another machine, cannot be used to continue or complete a previously made film, or if used, will cause an undesirable overlapping of the films in the field of the pictures when spliced together, and such overlapping of one picture on another produces in projection or printing, an undesirable dark line, wherever such splices occur. As a result a machine as now made cannot be used to complete a picture made by another machine without producing the result referred to. In a great many instances masks are used to establish uniformity in the spacing. They are, however, not readily changeable, and, on account of a necessary number of them each of which must correspond to a possible variation of the space between the perforations, are unsatisfactory and unreliable. The adjustability of the connecting rod is therefore of great importance, and enables any machine thus provided, to finish an unfinished film made by another machine, irrespective of the degree of the space variation. It is obvious that the adjustment must be made while the tines of the rake are in engagement with the perforations in the film, and that such adjustment does not affect the stroke of the rake. A spring 14, interposed between said plate 4, and said bar 5, serves to move said bar and disengage the tines 7, thereof, from the perforations in the film, at the end of a predetermined movement. Said rake or bar 5, is provided with a projecting surface 15, against which a cam 16, mounted on a shaft 17, is arranged to operate to force and hold the tines 7, of the rake in engagement with the perforations in the film during the movement thereof in one direction, and support said rake during the movement thereof in another direction, that is, during the reciprocation of the same when the film is at rest. As seen, the cam 16, is mounted independently of the rake, but is given movement simultaneous with the rake reciprocation in both directions. Such independent mounting of the cam does away with the undesirable effects of a compulsory movement resulting from interdependent positive connection with the rake, comprising principally excessive vibration, undue friction, instability of the rake movement and circular travel of the rake. On said

shaft 17, is a pinion 18, in mesh with a gear 19, and on the shaft 20, of said fly wheel 13, is a pinion 21, meshing with a gear 22, which in turn meshes with said gear 19, to cause a synchronous movement of said cam 16, with said rake 5, when the driving gear 23, in mesh with the said gear 22, is rotated by a crank 24, applied to the shaft 25, on which said driving gear is mounted.

As seen in Fig. 2, when the driving gear 23, is rotated, the engagement of the cam 16, with the surface 15, of the rake occurs simultaneously with the movement of the rake, and such engagement continues until the film has been moved a determined distance, by the tines of the rake, which are held extended through the perforations in the film by the cam. When the cam is moved away from the surface 15, of the rake, the spring 14, immediately causes a retractile movement of the rake and its tines, leaving the film in a state of rest, while the continued rotation of the fly wheel, returns the plate and rake to its original position, preparatory to again advancing the film.

The engagement of the tines 7 with the film perforations occurs concurrently with the passing of the crank or connecting rod 11, over dead center, or practically when there is no motion. That amount of motion which is lost during the passage of the connecting rod over dead center is expressly utilized for respectively making the engagement of the tines with the perforations, and disengaging the tines from the perforations, to the end that the movement of the rake will always be a square one instead of circular. Since there is no lost motion in the constantly revolving cam 16, it, continuing its revolutions while the connecting rod passes dead center, effects a rectilinear movement of the rake and an engagement of the tines thereof with the film perforations in a true manner. So also is the disengagement of the tines from the film perforations effected by the spring during the period of rest of the connecting rod, that is when passing the lower dead center. The prime object of this provision is to eliminate all circular movement of the film engaging rake and thus to insure positive engagement with and preservation of the film.

What I claim, is:—

1. In a motion picture machine, a perforated film, a rake to engage the perforations in said film, a slide on which said rake is pivotally supported, a fly wheel, an adjustable connection between said fly wheel and slide to transmit reciprocatory movement to said rake, a shaft, a cam on said shaft and in operative relation to said rake, means to rotate said cam synchronously with the reciprocation of said rake to cause said rake to engage the perforations in and advance said film in one direction, and a spring to cause a disengagement of said rake from the perforations in said film at the end of a movement thereof in one direction.

2. In a motion picture machine, a film, and a means to intermittently move said film comprising a film engaging member, a slide on which said member is mounted, a disk, an adjustable crank connection between said slide and disk, means to impart movement to said disk to reciprocate said slide, a cam independently mounted and in operative relation to said member to cause said member to engage said film during the reciprocation thereof in one direction, means to rotate said cam synchronously with the reciprocation of said slide, and a spring on said slide to disengage said member from said film at the end of a movement thereof in one direction.

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

OSCAR SCHWIMMER.

Witnesses:
ROBT. ROBERTSON,
W. WALKER.