E. W. CLARK.

MECHANICAL MOVEMENT FOR MOTION PICTURE MACHINES.

APPLICATION FILED JULY 19, 1915.

1,304,854.

Patented May 27, 1919.

2 SHEETS—SHEET 1.

FIG. 1.

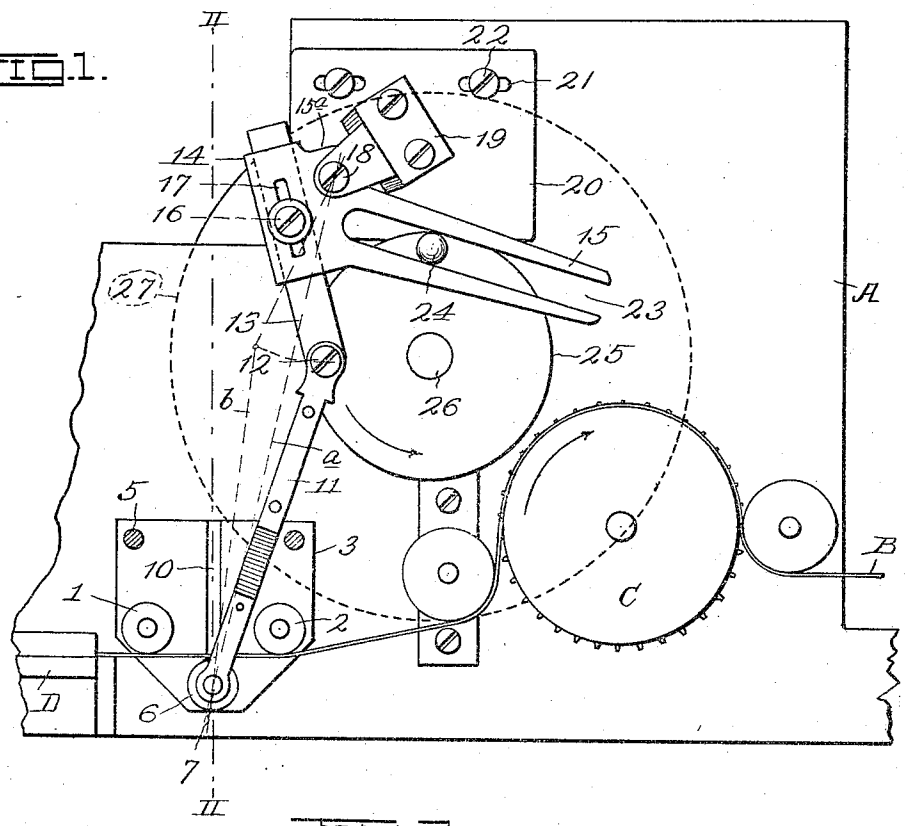
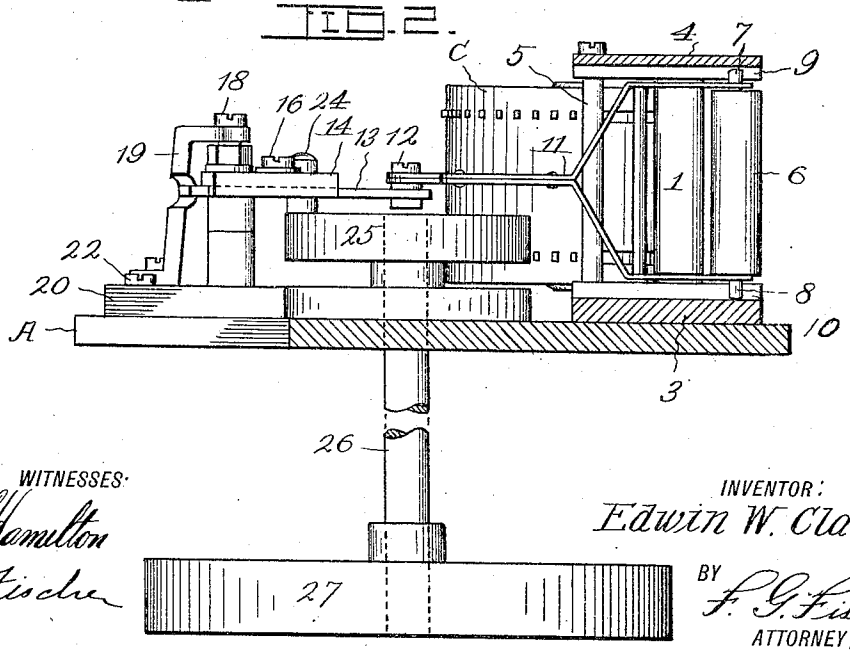


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

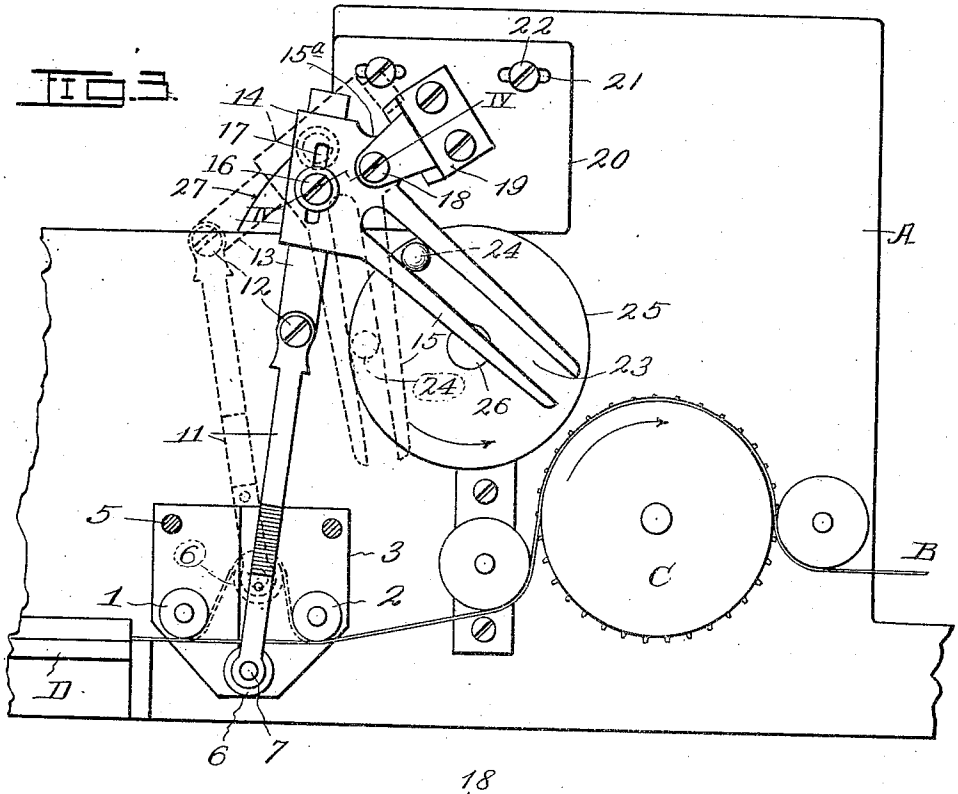
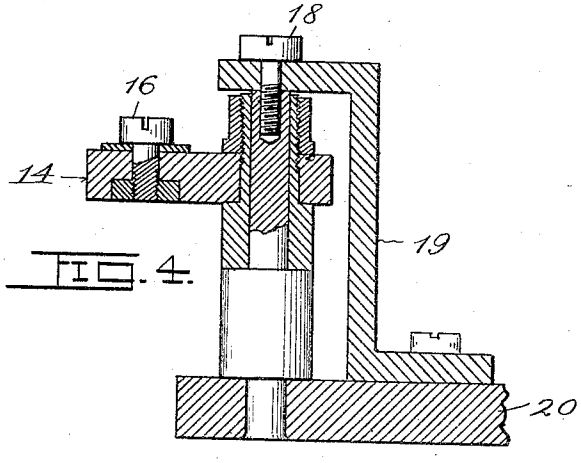


FIG. 4.



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UNITED STATES PATENT OFFICE.

EDWIN W. CLARK, OF KANSAS CITY, MISSOURI, ASSIGNOR TO PHOTO MOTION COMPANY, A CORPORATION OF MISSOURI.

MECHANICAL MOVEMENT FOR MOTION-PICTURE MACHINES.

1,304,854. Specification of Letters Patent. Patented May 27, 1919.

Application filed July 19, 1915. Serial No. 40,670.

To all whom it may concern:

Be it known that I, EDWIN W. CLARK, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Mechanical Movements for Motion-Picture Machines, of which the following is a specification.

My invention relates to mechanical movements, and the present invention is an improvement over the one disclosed in my copending application filed Feb. 25, 1915.

The most important feature of the present invention resides in the arrangement and construction of the driving and driven members, which do not become disengaged during a portion of the revolution of the driver, as in the aforesaid copending application, but remain in constant engagement with each other. Hence, the driven member is not dependent for a portion of its movement on springs or films, but on the contrary it is positively controlled throughout its entire movement by the driver, and consequently all chance of the driver and driven members getting out of proper relation to each other is positively overcome.

Other features of the invention will hereinafter appear, and in order that said invention may be fully understood, reference will now be made to the accompanying drawings, in which:

Figure 1 is a plan view of the mechanical movement, showing the rotary member passing through an idle portion of its revolution.

Fig. 2 is a vertical section on line II—II of Fig. 1.

Fig. 3 is a plan view, showing the rotary member entering an operative part of its revolution, in full lines, and having attained a point about midway between such operative position, in dotted lines.

Fig. 4 is a vertical sectional view, enlarged, on line IV—IV of Fig. 3.

Referring now in detail to the several parts, A designates a portion of the frame of a moving picture machine, B, a film, C a sprocket wheel for taking up slack in the film B, and D the trap through which the film is fed step by step by my present invention.

1 and 2 designate a pair of rollers along which the film B, travels. Said rollers 1 and 2 are journaled in a frame consisting of top and bottom plates 3 and 4, and posts 5 uniting said plates.

The rollers 1 and 2 are spaced apart to admit the passage of a take-up roller 6, which engages the opposite side of the film B to that engaged by the rollers 1 and 2. Said take-up roller 6 is provided at its ends with journals 7 and 8, which extend into guide slots 9 and 10 in the plates 3 and 4, respectively. Said journals 7 and 8 are mounted in the forked end of a pitman 11, connected at its opposite end by a pivot 12 to an arm 13, adjustably secured to the shank 14 of an oscillatory crank 15 by means of a screw 16 extending through a slot 17.

Crank 15 has an off-set 15^a fulcrumed upon a pivot 18, carried by a bracket 19 mounted upon an adjustable plate 20, having slots 21 through which screws 22 pass into the frame A for the purpose of securing the plate 20 at any point of its adjustment upon said frame. By adjustably mounting the arm 13 and the plate 20 as above described, the take-up roller 6 can be readily adjusted into proper relation with the rollers 1 and 2 to coact with the sprocket wheel C in moving the film B, step by step, the exact length of the picture sections upon said film B.

The crank 15 has a longitudinal slot 23, open at its outer end and of such width as to receive a driver in the form of a wrist-pin 24, mounted upon a disk 25 fixedly-mounted upon a shaft 26, driven by suitable means (not shown) and provided at its lower portion with a fly-wheel 27 to insure uniform speed of said shaft.

With the several parts disposed as shown, backward movement of the roller 6 to the dotted position, Fig. 3, is quite rapid as it is accomplished during the short travel of the wrist-pin 24 from the full line position to the dotted line position of said Fig. 3, and consequently movement of the film B past the usual aperture in the trap D, is faster than in common practice. This reduces the necessary period of shutter covering for the trap aperture and accordingly reduces shutter disturbance or flicker.

Forward movement of the roller 6 to the full line position is accomplished less rapidly than the backward stroke, because the wrist-pin 24 moves away from the fulcrum 18 and in a more direct line with the crank 15, and after said roller 6 reaches said full

line position it pauses while the pivot 12 describes an arc across the dotted line *a* to the position disclosed by Fig. 1, and recrosses said line *a* to the dotted line position *b*.

From the foregoing description, it is apparent that only a small fraction of the revolution of the driver 24 is utilized in drawing the film B through the trap D, and as rapidity of such fractional movement is compounded through the crank 15, the movement of the film B is accordingly accelerated.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A mechanical movement consisting of a constantly rotating driver, a driven member extending clear across the rotary path of and operated at variable speed during each revolution of said driver, a pitman actuated by said driven member, and a film-engaging member actuated by said pitman.

2. A mechanical movement consisting of a rotary driver, an oscillatory crank actuated by said driver and provided with a shank, an arm adjustably secured to said shank, a pitman pivotally connected to said arm, a film-engaging member carried by said pitman, a guide for said film-engaging member, and two additional film-engaging members mounted at opposite sides of the path of the first film-engaging member.

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

EDWIN W. CLARK.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."