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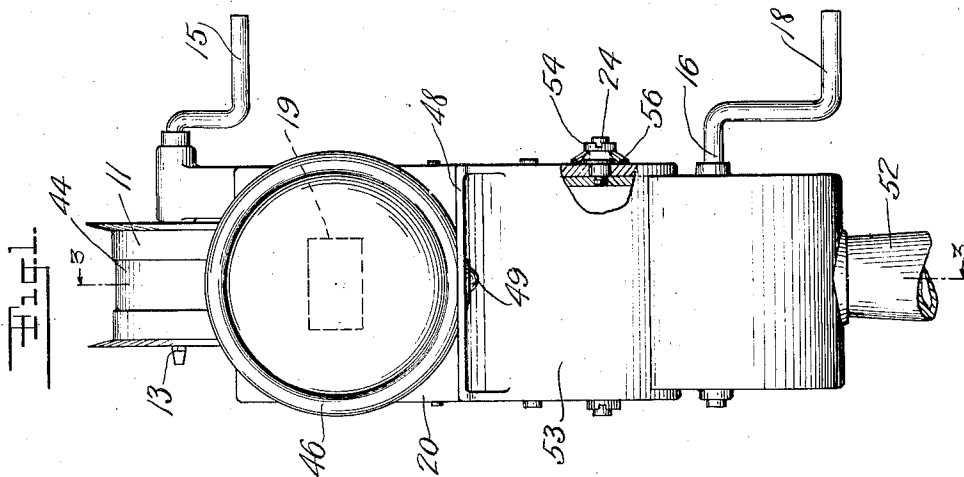
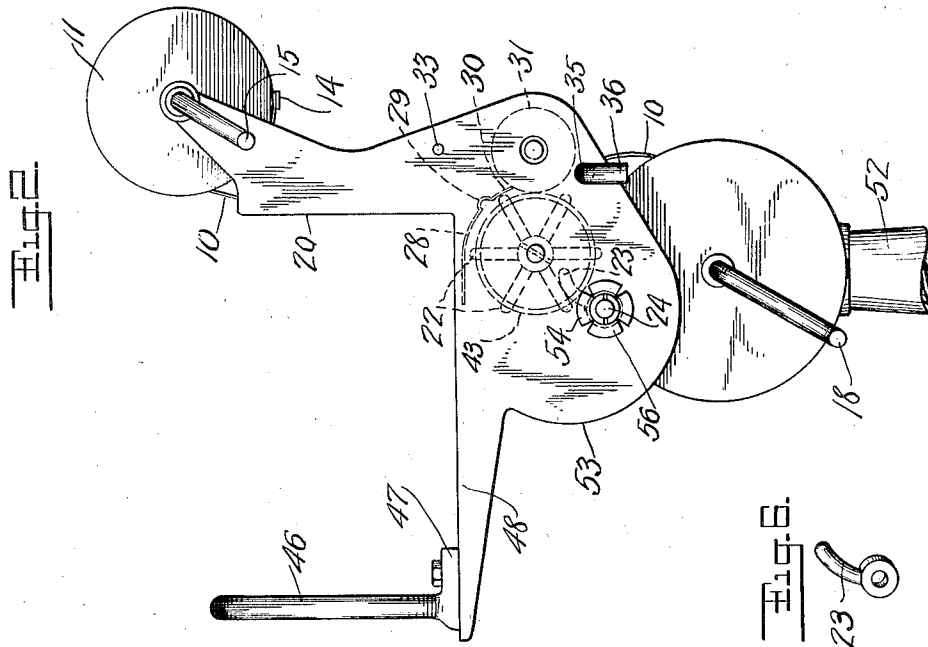
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C. S. ACKLEY

MOTION PICTURE EXHIBITING MACHINE

Filed April 22, 1920

2 Sheets-Sheet 1



Inventor
Charles S. Ackley
By his Attorney
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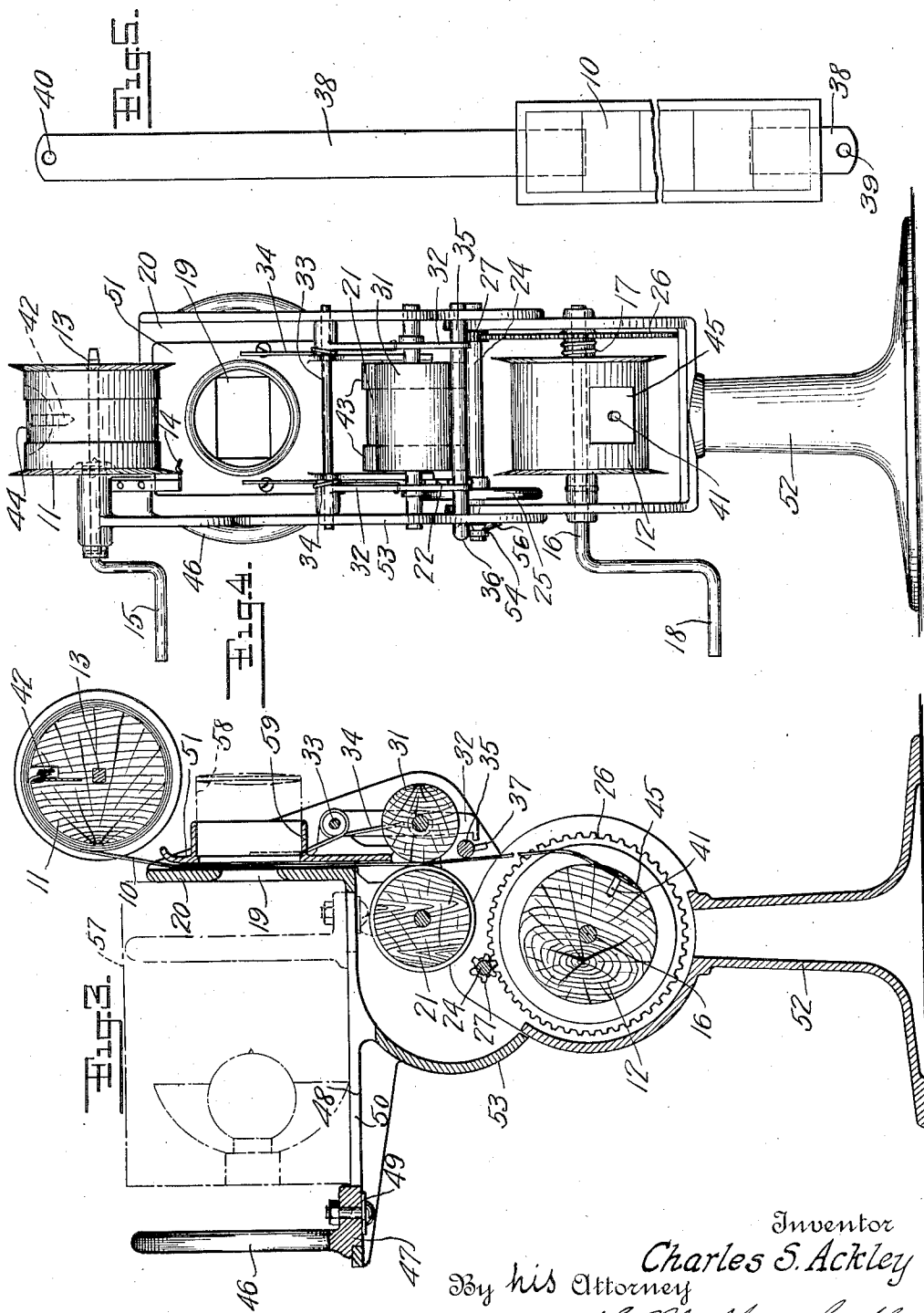
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MOTION PICTURE EXHIBITING MACHINE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

CHARLES S. ACKLEY, OF NEW YORK, N. Y.

MOTION-PICTURE-EXHIBITING MACHINE.

Application filed April 22, 1920. Serial No. 375,679.

To all whom it may concern:

Be it known that I, CHARLES SEXTON ACKLEY, a citizen of the United States of America, and a resident of New York, city and county of New York, State of New York, have invented certain new and useful Improvements in Motion-Picture-Exhibiting Machines, of which the following is a specification.

My invention has for its objects the provision of simple and practical apparatus for viewing motion pictures directly from the picture strip and which also will be capable of projecting the pictures.

Other objects are to make the apparatus in compact and inexpensive form and particularly suitable for use as a child's toy.

The invention involves numerous novel features of construction, combinations and arrangements of parts, as will be described in detail in the course of the following specification.

In the drawings accompanying and forming a part of this specification, I have illustrated the invention embodied in one of its simplest, practical forms, but wish it understood that the structure may be modified without departure from the true spirit and scope of the invention as defined in the appended claims.

In the drawings referred to:

Figure 1 is a front or face view of the machine, with the base indicated as broken away.

Figure 2 is a right hand side elevation of the machine.

Figure 3 is a vertical sectional view as taken on substantially the plane of line 3—3 of Figure 1.

Figure 4 is a view of the rear end of the machine, looking toward the right hand side of the apparatus as it appears in Figure 2.

Figure 5 is a broken detail view of the picture strip.

Figure 6 is a detail view of the intermittent strip advancing mechanism.

Like reference characters refer to corresponding parts throughout the several views.

In the illustration, 10 designates the picture strip which may consist simply of a strip of photographic paper having the pictures printed thereon, or may be in the na-

ture of a strip of standard film. This strip is carried at the top of the machine by a supply reel 11 and is wound up at the base of the machine on a take-up reel 12.

The supply reel is shown as removably engaged on a squared or angular shaft 13 and as held in place thereon by the engagement of one of the flanges thereof over a holding spring 14 (Fig. 4). This spring snaps over the flange as the spool is slipped over the shaft and serves both to confine the spool on the shaft and by exerting a certain amount of friction on the flange, to hold the spool under proper control. This shaft is also shown as provided with a hand crank 15 which may be used for rewinding purposes.

The take-up reel is mounted on a shaft 16 with which it has a slip connection provided, for instance, by means of a spring 17 secured at one end to the shaft and bearing at its opposite end against one end of the reel. This shaft is shown provided with a hand crank 18, forming a handle by which the machine is operated for the purpose of viewing or exhibiting the pictures.

The picture strip is intermittently advanced past the exposure opening 19, provided in the gate member 20, by means of a strip advancing roll 21 which is provided at one end with a series of radiating fingers 22 positioned to be successively engaged by a projecting cam lug or arm 23 on the shaft 24. This shaft carries a fly wheel 25 and is driven from the operating and take-up reel shaft by means of a gear 26 on the operating shaft meshing with a pinion 27 on the fly wheel shaft.

The movements of the film advancing roll are governed and gaged in the illustration by means of a spring 28 arranged to bear on the ends of the radiating fingers and provided with a pocket 29 to receive and temporarily hold each finger as the film comes to rest in the position of exposure. The end of this spring is shown at 30 as flared outwardly to form a cam enabling the machine to be turned backwardly if necessary, and providing a finger hold by which the spring may be lifted.

The picture strip is pressed against the film advancing roll by a pressure roll indicated at 31, journaled in the swinging

arms 32 which are pivoted at 33 and are yieldingly forced toward the advancing roll by springs 34.

The pressure of this roll may be relieved by means of a rock shaft 35 which may be turned through the medium of a handle 36 at one end thereof and which carries a lug or bar 37 arranged to engage and to force back the spring-pressed arms carrying the pressure roll.

The picture strip which I prefer to use in the machine is of novel construction in that it is provided at one or both ends with tapes 38 narrower than the body of the strip. These tapes are suitably engaged with the take-up and supply reels, they being shown as provided with openings 39 and 40 to be engaged over the pins or hooks 41 and 42 on the supply and take-up reels.

The film advancing roll preferably is formed with raised flanges, such as indicated at 43 for gripping engagement with only the edge portions of the picture strip and as recessed or of reduced diameter between these flanges so as to not engage the face of the picture strip and also so as to pass the tape at the end of the picture strip without engaging the same. This construction causes the film advancing mechanism to cease functioning as soon as the tape portion at the end of the picture strip is reached. The supply reel is also indicated at 44 as of reduced diameter in its intermediate portion to provide a seat for the terminal tape 38. The terminal tape at the front end of the picture strip is shown as short enough to seat in the recess 45 provided in the take-up spool for the strip securing pin 41.

The pictures ordinarily are viewed through a viewing lens 46 which is shown as adjustably supported in front of the exposure aperture by being carried on a base or bracket 47, slidably on the table 48 and secured in its adjusted position by means of a fastening or securing bolt 49 working in the slot 50 provided in the table.

In using the machine, after the supply reel has been placed on the upper shaft 13, the leading end of the strip is fed down through the passage provided between the back of the gate member 20 and the plate 51, in between the film advancing and pressure rolls and the lower end of the strip is engaged with the pin on the take-up reel. before starting the machine, the film may be bulged out between the advancing roll and the take-up reel to provide a certain amount of slack, as indicated in Figures 2 and 3. After the lens is properly focused the hand crank 18 is turned and this through the mechanism described causes the strip advancing roll to intermittently advance the pictures into the exposure position when the

gate forms a frame for each picture, and to wind the strip on the take-up reel, the slip connection described causing said reel to compensate for the increasing diameter of the strip wound on the reel.

After viewing the pictures, the film strip is rewound on its spool by turning the crank 15, the tension of the pressure roll being usually released during such rewinding by turning the handle 36 of the rock shaft 35.

In order that the machine may be set to suit the eyes of the user, I have shown the upper or viewing portion of the machine as angularly adjustable upon its supporting base.

52 is the base of the machine in which the take-up reel is journaled and 53 designates an upper frame supporting the strip advancing mechanism and supply reel and angularly tiltable on the base about the axis of the fly wheel shaft 24. This concentric adjustment is made possible by journaling the fly wheel shaft in the bushings 54 which pass through the side plates of the upper frame and are screwed into the side plates of the base member, as indicated in Figure 1. A spring washer is indicated at 56 as engaged between the head of one of these bushings and the adjacent side wall of the upper frame, so as to frictionally hold the frame in the position to which it is tilted.

The invention is adaptable for use as a projector by shifting the viewing lens up close to the exposure aperture, as indicated in Figure 3, and using it as a condenser in conjunction with the lamp mounted in the housing 57, which is shown as applied to the table 48 and by slipping a projecting lens 58 into the socket 59 provided therefor in the back of the guide plate 51.

What I claim is:

1. In a machine of the character described, a take-up reel for a picture strip, a hand crank for turning the same, a fly wheel geared to said take-up reel, a cam arm carried by said fly wheel, a picture strip advancing roll provided with radial fingers engageable by the cam arm, means for guiding a picture strip to the strip advancing roll, a supply reel provided with a rewinding crank, a pressure roll for holding the picture strip against the advancing roll and means for releasing the pressure roll from holding engagement with the strip during the rewinding operation.

2. Motion picture viewing apparatus, comprising a gate member provided with an exposure aperture, supply and take-up reels at the opposite sides of said aperture, a strip advancing roll at the take-up side of the aperture, means for rotating the take-up and supply reels for exposing or rewinding the picture strip, gearing from the take-up reel for intermittently actuating the advancing

roll and a viewing lens adjustably positioned in front of the exposure aperture.

3. Motion picture viewing apparatus, comprising a gate member provided with an exposure aperture, supply and take-up reels at the opposite sides of said aperture, a strip advancing roll at the take-up side of the aperture, means for rotating the take-up and supply reels for exposing or rewinding the picture strip, gearing from the take-up reel for intermittently actuating the advancing roll, a viewing lens adjustably positioned in front of the exposure aperture and means for supporting a projecting lens in back of the exposure aperture and for supporting a lantern and condensing lens in front of the exposure aperture.

4. In apparatus of the character described, a picture strip advancing roll having raised flanges for engagement with the edges of the strip and recessed between said flanges and a picture strip of a width to be gripped by said flanges and provided with a terminal strip of lesser width than the picture section and arranged to pass between the flanges and free of engagement therewith, a take-up reel provided with means for the attachment of the end of the terminal strip thereto and with a hand crank for rotating the same and gearing from said take-up reel for operating the strip advancing roll aforesaid.

5. In a machine of the character described, a shaft provided with a hand crank, a take-up reel on said shaft, a slip connection between said shaft and take-up reel, a gear on said shaft, a fly wheel shaft provided with a pinion in mesh with said gear, a fly wheel and a projecting cam arm on said fly wheel shaft and a strip advancing roll provided with means for engaging a picture strip radial fingers outside of the strip engaging means for engagement with said cam arm.

6. In a machine of the character described, a base, a take-up reel journaled in said base, a fly wheel journaled on the base and geared to the take-up reel, a frame pivoted on the base on an axis concentric to the fly wheel shaft, strip advancing means journaled in said frame and gearing from the fly wheel shaft for intermittently actuating said strip advancing means.

7. In a machine of the character described, a base, a take-up reel journaled in said base, a fly wheel journaled on the base and geared to the take-up reel, a frame pivoted on the

base on an axis concentric to the fly wheel shaft, strip advancing means journaled in said frame, gearing from the fly wheel shaft for intermittently actuating said strip advancing means, and means for yieldingly securing the frame in different angularly adjusted positions on the base.

8. In a machine of the character described, a base, a take-up reel journaled in said base, a fly wheel journaled on the base and geared to the take-up reel, a frame pivoted on the base on an axis concentric to the fly wheel shaft, strip advancing means journaled in said frame, gearing from the fly wheel shaft for intermittently actuating said strip advancing means, means for yieldingly securing the frame in different angularly adjusted positions on the base, and consisting of a rock shaft, a lug on said rock shaft and a yieldingly supported strip engaging member positioned to be shifted by said lug.

9. Apparatus for viewing motion pictures comprising a supporting structure provided with an exposure aperture, means for guiding and for intermittently advancing a picture strip past said exposure aperture and a viewing lens adjustably supported on said supporting structure in front of the exposure aperture to enable the pictures being directly observed as they are advanced by the intermittent strip advancing mechanism, the supporting structure comprising a base and a frame angularly adjustable thereon to bring the axis of the viewing lens and exposure aperture in line with the eyes of the operator.

10. Apparatus for viewing motion pictures comprising a supporting structure provided with an exposure aperture, means for guiding and for intermittently advancing a picture strip past said exposure aperture and a viewing lens adjustably supported on said supporting structure in front of the exposure aperture to enable the pictures being directly observed as they are advanced by the intermittent strip advancing mechanism, said supporting structure provided with means for removably supporting a projecting lens in rear of the exposure aperture and provided with means for removably supporting a lamp housing and condenser lens in front of the exposure aperture.

In witness whereof, I have hereunto set my hand this 20th day of April, 1920.

CHARLES S. ACKLEY.