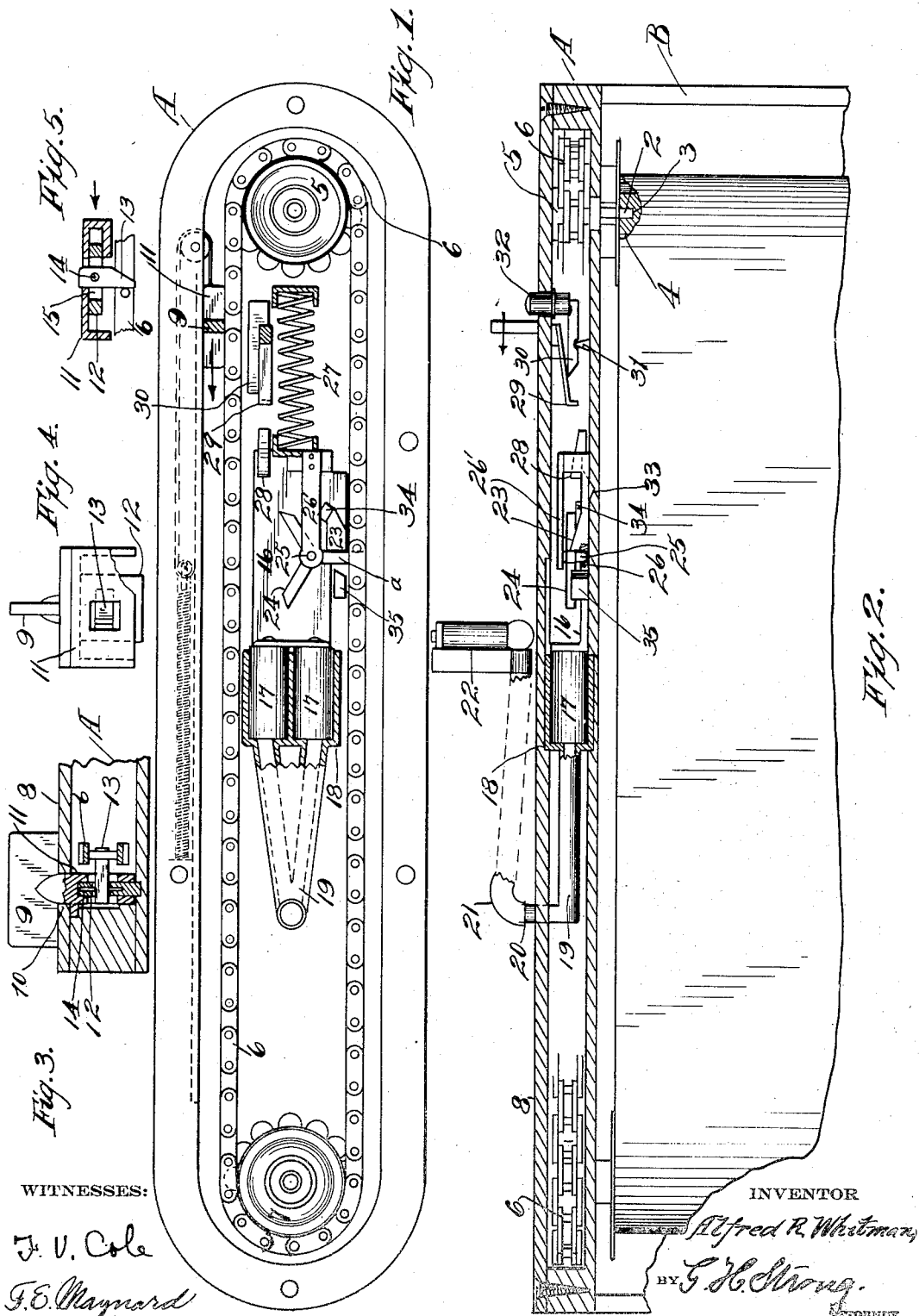


A. R. WHITMAN.
 REEL ACTUATING DEVICE FOR CAMERAS.
 APPLICATION FILED MAY 31, 1912.

1,062,313.

Patented May 20, 1913.



WITNESSES:

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ALFRED R. WHITMAN, OF BERKELEY, CALIFORNIA.

REEL-ACTUATING DEVICE FOR CAMERAS.

1,062,313.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed May 31, 1912. Serial No. 700,654.

To all whom it may concern:

Be it known that I, ALFRED R. WHITMAN, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Reel-Actuating Devices for Cameras, of which the following is a specification.

This invention relates to cameras employing flexible films, and it is an object of the present invention to provide a mechanism for rapidly winding or moving the film after an exposure, by a single continuous movement as distinguished from the present method of intermittent or step by step turning of a button.

It is a further object of the invention to provide in combination with a web or film feeding device, air compressing mechanism adapted to be set as the film is shifted, and capable of being released manually for the operation of the camera shutter.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the device with the box cover removed. Fig. 2 is a longitudinal vertical section through the structure showing it applied to a camera. Fig. 3 is a detail showing the chain actuating pawl in operative position. Fig. 4 is a detail of the finger key and pawl. Fig. 5 is another detail of the chain actuating pawl.

In its illustrated embodiment my invention consists of a suitably mounted or other structure here represented as a shallow box A, in plan conforming to the transverse sectional area of a camera B, to which the box A may be applied at one side in such manner that a tongue 2 projecting into the camera B from the box A will engage a kerf or slot 3 formed in the end of a film reel 4, rotatably mounted in the camera.

The tongue 2 is suitably secured to a sprocket wheel 5 suitably journaled in the box A and which is driven by a sprocket chain 6 of suitable design, which travels around the sprocket wheel 5 in one end of the box A and around an idler sprocket wheel 7 mounted in the other end of the box. The box is formed with a suitable chamber in which may be mounted the sprocket wheels and their actuating chain.

I have shown the box as covered with a removable top or cover 8, which may be removed to permit access to the mechanism if desired.

For the purpose of actuating the chain 60 and through it the reel winding tongue 2, I have provided a key 9 adapted to project above the cover 8 and which is movable in a slot 10 formed therein; the key or wing 9 being provided with a rigid transversely disposed slide 11 movable along the slot 10, and within the slide 11 is slidably mounted a block 12 adapted to reciprocate slightly longitudinally in the slide 11.

The construction of the slide 11 and the block 12 is clearly shown in Figs. 3, 4, and 5; the block 12 being provided with a pawl 13 pivoted on a trunnion or pivot 14 mounted transversely in the block 12, which is provided with an aperture 15 of sufficient size to permit the pawl 13 to swing at right angles to the slide 11, as shown in Fig. 3, when the slide is shifted in its slot 10 in the direction indicated by the arrow in Fig. 5. When the slide 11 is shifted in a direction reverse to that indicated by the arrow, the pawl 13 is swung about its pivot 14, to such an angle that the return movement of the slide 11 from one end of the slot 10 to the position indicated in Fig. 1, may be effected without the engagement of the chain 6 by the pawl 13.

In operation, when the slide key 9 is pressed in the direction indicated by the arrow, Fig. 1, the initial part of the movement of the slide 11 which is rigid with the key 9, is spent in swinging the pawl 13 to a right angle with relation to the slide 11, as shown in Fig. 5, so that the outer point of the pawl will engage the chain 6, and the continued movement of the slide 11 by pressure upon its key 9 will cause the chain 6 to move, thus revolving the sprocket wheel 5, and through this, by means of the tongue 2, turn the reel 4 to shift the film windable thereon. The operator having shifted the key in its slide 11 in the slot 10 to effect a sufficient movement of the chain 6 to wind a portion of the film in the camera, the key and its slide 9 may then be returned to the initial position shown in Fig. 1, during which return movement the pawl 13 is rendered inoperative with relation to the chain 6, by reason of its being changed to an inclined position when the short end of the

pawl 13 is engaged by a contiguous wall of the slide 11, which effects a swinging movement of the pawl about its fulcrum 14.

It is desirable to provide a mechanism, such as the present invention contemplates, whereby the facility and rapidity with which successive portions of the film may be presented for exposure in the camera B; and it will be seen that the film in the camera may, by the present and hereinbefore described mechanism, be shifted with great rapidity by the simple reciprocation of the key slide 11, which in conjunction with the actuating pawl 13, effects the reeling of the film. And to further facilitate the operation of the camera and insure that it is prepared for instantaneous operation, as soon as a new area of the film is presented behind the camera lens, I have provided means operable by the chain 6 whereby an air compressing mechanism is simultaneously set, or in other words, adjusted to such a position that by the simple touch of a button it may be released and exposure of the film made.

The pneumatic mechanism consists in the present instance of a carriage 16, slidable along the bottom of the box A, which if desired, may form a closure for one side of the camera B. The carriage 16 is provided at one end with one or more pistons 17, slidable in respective cylinders 18, in which air may be compressed and discharged into a common duct 19 which terminates in a connection 20, to which may be attached a conductor 21, such as a rubber hose, which may connect with the shutter cylinder 22 of the camera B.

For the purpose of bringing the carriage 16 to a position preliminary to the compression of air in the cylinder or cylinders 18, one side of the carriage 16 is provided with a shoulder or stop 23, projecting sufficiently above the plane of the carriage to be engaged by one of a plurality of arms 24, rigidly connected and secured upon a shaft 25, the lower end of which is longitudinally movable in a journal opening 26; the upper end of the shaft 25 being engaged by a downwardly pressing spring 26' secured to the carriage 16.

As the chain 6 is actuated, one of the arms as *a*, Fig. 1, will be forced against the upwardly projecting stop 23, and during the rearward movement of that portion of the chain 6, the carriage will be shifted thereby compressing a spring 27. As the carriage 16 moves toward the end of the box A, in which is mounted the sprocket wheel 5, a shoulder 28 on the carriage passes beneath a latch or spring 29, which is also effective upon a lever 30 fulcrumed on a support 31; the opposite end of the lever being engaged by a button 32 projecting upwardly through the cover 8 of the box A, and which when depressed is effective to lift the latch 29 to

permit the spring 27 to thrust the carriage 16 with its pistons 17 so that the latter, when entering their respective cylinders, will compress a quantity of air, the force of which will be effective on the shutter 22 of the camera to expose the film.

For the purpose of controlling and limiting the position of the carriage 16, the lower end of the star wheel shaft 25 travels on an undulating surface 33, the contour of which will be designed to lift the star wheel or arms 24 at a given point, so that the particular arm held against the stop 23 of the carriage 16, by the moving chain 6 will be lifted sufficiently to clear the stop 23, whereupon the carriage 16 will cease movement, the continued motion of the chain simply swinging the temporarily engaged arm 24 over the stop 23 until the arm engages another stop 34 on the slide, the position of which will determine the relation of the arms 24 relative the carriage when this is adjusted compressing the spring 27. It will now be seen that the operator by moving the key slide 11 simultaneously changes the position of the film by revolving the reel 4, and also sets the carriage 16 by the movement of the chain 6, so as to compress the spring 27; the carriage 16 being held in set position by the spring latch 29, and at the moment the operator desires to make an exposure with the camera, pressure on the button 32 will oscillate the lever 30 and this in turn will lift the latch 29, thereby releasing the slide so that this will be projected by the spring 27 to compress a charge of air in the cylinder or cylinders 18, and actuate the shutters controlled by the shutter cylinder 22. As the carriage 16 is moved under the impulse of the spring 27, the shaft 25 of the star wheel or arms 24 will ride over the undulating surface 33 against which it is forced endwise by the spring 26' the contour of the surface 33 being sufficient to release the arm engaging the stop 34, so that another of the arms can, when engaged by the fixed stop 35, swing outwardly over the edge of the carriage 16 into position to be engaged and actuated by the chain 6, when this is moved by the actuating pawl 13.

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

1. In a camera, the combination of a film winding reel, and means for revolving the reel, to wind an exposed area of the film, said means including a reciprocating actuator and an endless carrier, and operating connections between the carrier and the reel, said connections adapted to positively engage the carrier in one direction of the movement of the actuator and yieldable relatively to the carrier on the return movement of the actuator.

2. In a camera, a film winding apparatus including a reel upon which the film is windable, a rotary element detachably engaged by the reel, means including an endless carrier for revolving said element to turn the reel, a reciprocating actuator, and a clutch device on the actuator operative on the carrier in one direction only.

3. The combination in a camera, of a film winding apparatus, said apparatus including an endless carrier, a slidable actuator engageable therewith having a clutch member operative upon the carrier in one direction only, said carrier designed to wind an exposed portion of the film, an air compressing mechanism, and means controlled by a returning portion of the carrier adapted to operate said mechanism simultaneously with the film shifting reciprocation of the actuator.

4. The combination in a camera, of a film winding apparatus, said apparatus including a slidable actuator and an endless carrier engaged thereby and adapted to wind an exposed portion of the film, an air compressing mechanism operated simultaneously with and by a returning portion of

the carrier, and manually controlled means for releasing the air compressing mechanism after the film has been adjusted.

5. In a camera, the combination of a web and a winding reel therefor, a rotary driver to which the reel may be attached, and a means for actuating the driver to wind an exposed area of film, said means including an endless chain engageable with the driver, and a reciprocating clutch operative upon the chain in one direction only.

6. In a camera, the combination of a winding reel, a flexible film windable thereon, and a reciprocating actuator whereby the reel is turned to wind an exposed area of the film, said actuator including a clutch, a chain on which the clutch is operative when moved in one direction only, and a driver connected to the reel and moved by the chain.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALFRED R. WHITMAN.

Witnesses:

PAUL BAILEY,

WALTER E. STODDARD