

E. D. WATSON.
TIMING ATTACHMENT FOR CAMERA SHUTTERS.
APPLICATION FILED OCT. 21, 1909.

1,013,525.

Patented Jan. 2, 1912.

Fig. 1.

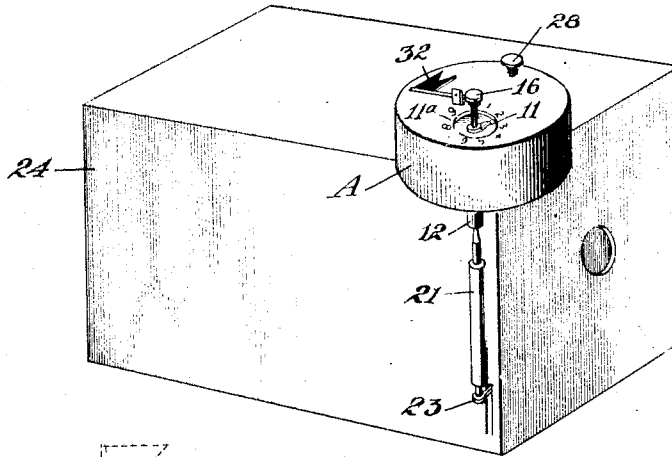


Fig. 2.

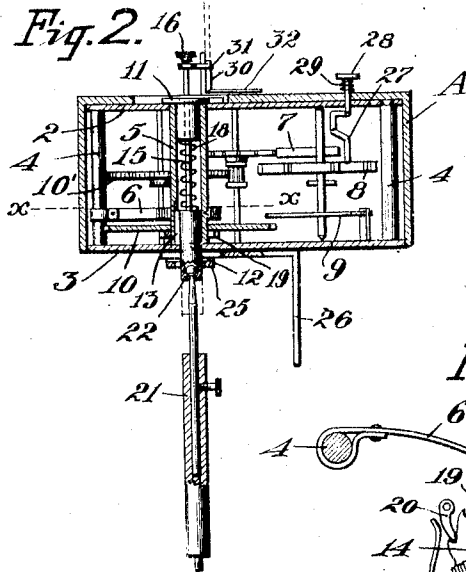


Fig. 3.

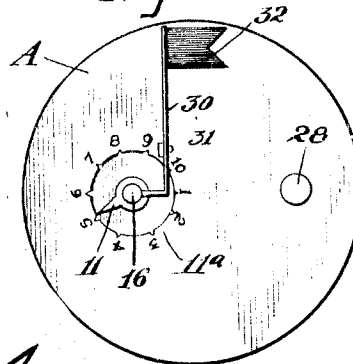
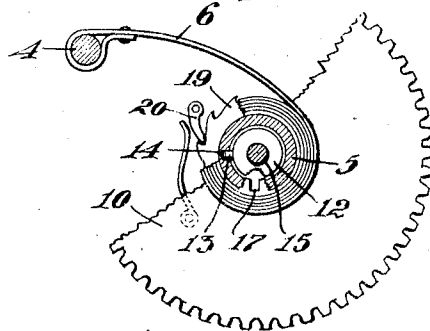


Fig. 4.



WITNESSES:

R. L. Berry

A. E. Maynard

INVENTOR

EDGAR D. WATSON

BY *G. H. Strong*

HIS ATTORNEY.

UNITED STATES PATENT OFFICE.

EDGAR D. WATSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO
SYDNEY WATSON, OF SAN FRANCISCO, CALIFORNIA.

TIMING ATTACHMENT FOR CAMERA-SHUTTERS.

1,013,525.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed October 21, 1909. Serial No. 523,752.

To all whom it may concern:

Be it known that I, EDGAR D. WATSON, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Timing Attachments for Camera-Shutters, of which the following is a specification.

This invention relates to a time set actuating device.

It is the object of this invention to provide a time controlled mechanism for the purpose of actuating trip levers and the like after the lapse of a predetermined interval of time, and which invention is simple in operation and construction.

This invention is especially adapted for use on, and as an attachment to, cameras, for the purpose of operating the release lever of the shutter in making instantaneous exposures. By the use of this attachment it is possible for the operator of a camera automatically to take instantaneous exposures, thus enabling him to set up and focus the camera and then leave it to be operated at a certain time without the use of air tubes, or electrical or mechanical connections of any kind. This permits of the taking of photographs from points where it would be dangerous for an operator to remain for any great length of time, and also allows him to take photographs with himself in the view. It will be manifest that this particular application of the invention is but one of many uses to which it may be put.

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 perspective view showing the invention as applied to a camera. Fig. 2 is a vertical section of the time actuating device removed. Fig. 3 is a plan view of Fig. 2. Fig. 4 is an enlarged cross-section on the line X—X, Fig. 2, with parts broken away.

In the drawings, A is the case or housing of the operative mechanism. This case is constructed in a manner common in clock construction, with upper and lower disks 2 and 3 mounted upon separating posts 4 and containing a drum or winding barrel 5, coil spring 6, escapement 7, balance wheel 8,

hair-spring 9, and spur wheels 10—10', such as are used in an ordinary clock train. 55

The winding drum 5 is mounted between the disks 2 and 3, as shown in Fig. 2, and has an indicator or pointer 11 on its upper end which rides on the face of the disk 2 within a dial 11^a which is numbered at suitable intervals, in this case from "1" up to "10," indicating minutes or other intervals of time. The winding or turning and setting of the drum or barrel 5 is done by a milled thumb-piece 16 on a key stem projection 15. A plunger or presser member 12 is slidably mounted within the winding drum 5 and has a longitudinal rib 13 formed thereon which is adapted to slide up and down in a slot 14 on the inside of the drum 5, in such manner that as the winding drum is revolved by the unwinding of the spring 6, the plunger or presser 12 rotates in unison therewith. The stem 15 attached to the plunger 12 extends upward through the top of the case A and is provided with the thumb-piece 16 at its upper end. The lower disk 3 is perforated at the lower end of the drum 5 with an opening which will permit of the passage of the plunger 12, a notch 17 being provided at a certain point through which the rib 13 on the plunger 12 can pass. A spiral spring 18 within the drum 5 tends always to push the plunger 12 outward whenever the rib 13 and slot 17 are in register. Beneath the spur wheel 10 and mounted on the winding drum 5 is a ratchet wheel 19, the teeth of which correspond to the numbered divisions on the dial 11^a. A spring pawl 20 mounted on the under side of spur wheel 10 is continually in engagement with the ratchet 19, so that as the drum 5 is being revolved by the unwinding of the spring 6, the spur wheel 10 rotates therewith and is acted upon by the clock train, before described, in the usual manner. This spring pawl 20 and ratchet 19 also permit of the winding of the drum 5 and the spring 6 through the stem 15 and plunger 12, as later described, without making a back-set in the clock train. 100

In order to couple this device to an actuating lever, as 23, which may be the ordinary lever of a camera shutter, I may employ the following means: Assuming the device to be properly supported, the lower end

of the plunger 12 is connected to an adjustable rod 21 by a ball and socket joint 22, this rod 21 being adapted to bear upon the releasing lever 23 of a camera 24, as shown in Fig. 1. The rod 21 being adjustable in length and swivelly jointed permits of the device being attached to cameras of various types and sizes. The case A may be attached to a camera in any suitable and desired manner, such as slipping a stirrup 25 on the bottom of the case A over a bracket arm 26 on the camera 24. Means are provided for starting the clock train after the spring 6 has been wound which consist of a bell-crank lever 27 actuated by a push-button 28 in such manner that as the button 28 is suddenly depressed, the lever 27 will kick a projecting lug on the balance wheel 8 to start the clock action; the lever 27 being quickly returned by a spring 29. Means may be also provided for signaling or indicating when the time set has been released, and may consist of a rocking-bar 30 pivoted at 31 and having its short end loosely embracing the stem 15 and a semaphore 32 mounted on its outer end.

The operation of the invention is as follows: Assuming that it is required to operate a camera shutter at the end of five minutes, and the mechanism of the device is in a normal position, which is with the spring 6 unwound and the plunger or presser 12 projecting through the bottom plate 3 of the case A, the plunger 12 is drawn upward into the winding drum 5 by means of the thumb-piece 16 and stem 15, and against the tension of the spring 18. When the member 12 is in its uppermost position the rib 13 thereon is above the notch 17 in the plate 3 and is within the groove 14 in the winding drum 5. A slight turn of the thumb-piece 16 rotates the member 12 and drum 5, thus throwing the rib 13 out of alinement with the notch 17. Continued rotation of the drum 5 winds the coil spring 6 thereon, the spring pawl 20 engaging a notch on the ratchet wheel 19 as the pointer 11 reaches each numbered division on the dial 11^a; it being understood that the pointer 11 travels with the drum 5. The spring pawl 20 and ratchet 19 prevent the spring 6 from unwinding. When the pointer reaches the numeral "5" on the dial 11^a which corresponds to five minutes of time, the spring 6 has been wound sufficiently to require five minutes time in unwinding, when regulated by the clock train in the usual manner. On releasing the thumb-piece 16 after setting, the member 12 is kept in the barrel and the spring 18 is under tension so long as the rib 13 is out of register with notch 17; the unnotched portion of plate 3 forming a stop to limit the outward movement of the member 12. To set the clockwork in motion, press down upon the push-button 28; thereby le-

ver 27 starts the clockwork to running, allowing the spring 6 to slowly unwind and rotate the drum 5 back to its original position. If it were not for some sort of exciter, like the bell-crank 27, it would be necessary to shake the device to set the balance wheel in motion, and this would be impractical in most cases. As soon as the plunger 12 is directly opposite the opening in the plate 3, and the rib 13 registers with the notch 17, it is forced outward by the spring 18, thus pressing down the releasing lever 23 through the adjustable coupling rod 21, to operate the camera shutter in the usual manner. As the presser 12 drops down, the thumb-piece 16 engages the collar on the short arm of the rocking-bar 30 and pulls it downward so as to raise the signal 32 nearly perpendicular, thus indicating that the camera has been operated.

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

1. In a time releasing device, the combination of a rotatable member, a presser member turnable and longitudinally reciprocable, clock mechanism for rotating the first-named member, and means normally restraining and periodically permitting the presser member to move relatively to the rotatable member at the expiration of a predetermined period.

2. In a time releasing device, the combination of a rotatable member, a normally retracted presser member rotatable with the first-named member, and having an independent longitudinal movement, and a stop plate through which the presser member operates, said stop plate and presser member having a co-acting notch and lug-holding the presser member under retraction at one period and releasing it when the rotatable member is operated to bring said lug and notch into register.

3. The combination with a rotatable barrel member, of clock mechanism for turning the same, a presser member housed in the barrel, said presser member having means for holding it in the barrel, and means normally restraining and periodically permitting the presser member to be released through the medium of the clock mechanism.

4. The combination with a barrel, of clock mechanism for rotating the same, a spring-actuated presser member longitudinally reciprocable in the barrel, and co-acting stop means for holding the presser member under retraction in the barrel, said barrel being rotatable by the clock mechanism to release the presser member at the expiration of a predetermined period.

5. The combination of a rotatable barrel, clock mechanism for operating the same, a spring-actuated presser member in the barrel, a stop-plate over the end of the barrel

and having a perforation to pass the presser member, said member having a rib operating in conjunction with said plate to maintain the presser member in the barrel.

5 6. The combination of a rotatable barrel, clock mechanism for operating the same, a spring-actuated presser member reciprocal in the barrel, said presser member having a stem projection at one end, a pointer on said stem, and a dial over which the pointer is adapted to travel, and means for permitting the presser member to project from the barrel when the latter stands in one position, and for maintaining the presser member in the barrel whenever the barrel is turned out of that position.

7. The combination of a reciprocating spring-actuated presser member, a rotatable member connected therewith, clock mechanism for rotating the second member, and stop means for limiting the reciprocating movement of the presser member in one direction, said stop means including a rib on the presser member and a part over which the rib operates to hold the presser member under retraction in one direction of the rotation of the second member and past which said rib escapes when the second member is rotated in another direction.

8. The combination of a rotatable barrel member, a presser member reciprocal therein, a stop-plate having a hole and a radial slot, said presser member being in line with said hole and having a rib alinable with said slot, means to rotate the presser member to carry said rib out of line with said

radial slot, and clock mechanism for turning the presser member to bring said rib back into line with said radial slot.

9. The combination of a rotatable barrel member, a presser member reciprocal therein, a stop-plate having a hole and a radial slot, said presser member being in line with said hole and having a rib alinable with said slot, means to rotate the presser member to carry said rib out of line with said radial slot, and clock mechanism for turning the presser member to bring said rib back into line with said radial slot, said presser member carrying an extensible articulated coupler.

10. In a timing device, the combination of a rotatable barrel member, a spring-actuated presser member housed therein, clock mechanism including a balance wheel to operate the barrel member, a disk having a notch permitting the presser member to move lengthwise of the barrel when the latter is turned to its limit in one direction, a lug on the presser member by which said member is retained in the barrel when the latter is turned out of said position, and a device operative on the balance wheel for setting the clock mechanism in operation.

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

EDGAR D. WATSON.

Witnesses:

CHARLES A. PENFIELD,
RAYMOND A. LEONARD.