April 26, 1949. G. A. H. BUGEAUD 2,468,541

DELAYING MECHANISM CHIEFLY APPLICABLE TO CAMERAS

Filed May 17, 1947

Fig. 1

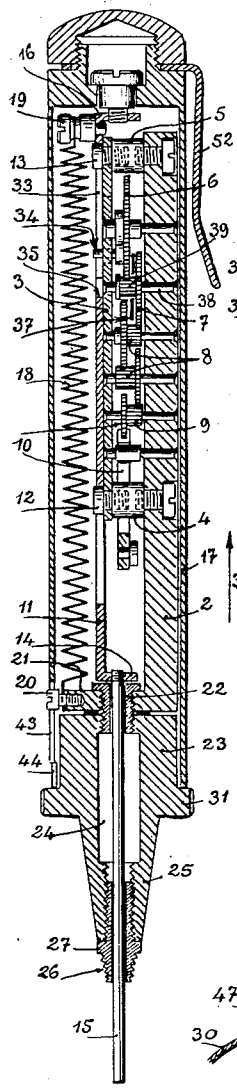


Fig. 2

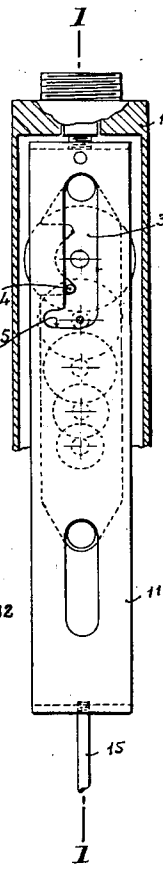


Fig. 3

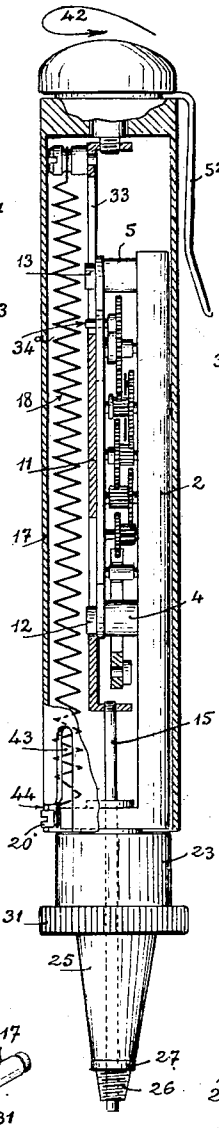


Fig. 4

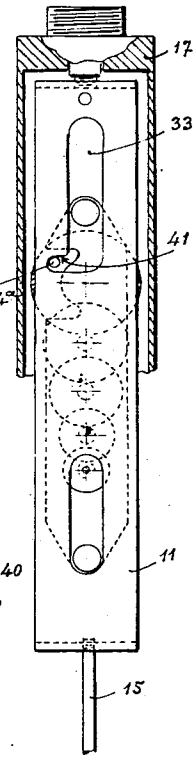


Fig. 5

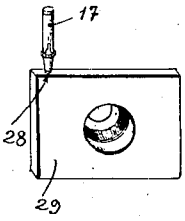
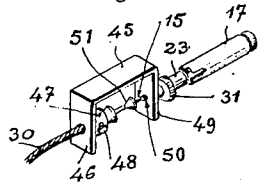


Fig. 6



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DELAYING MECHANISM CHIEFLY APPLICABLE TO CAMERAS

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Patent expires March 14, 1966

3 Claims. (Cl. 161—26)

1

The release delaying mechanism forming the object of my invention may be used each time it is desired to produce the release of a device or switch of any type whatever with a certain lag.

In the case of its application to the shutter of a photographic camera, it allows the operator to come in front of the camera when he desires to obtain his own photograph.

In my improved mechanism, a socket capping the apparatus and rigid with a slideway carrying the member releasing the shutter is movable with reference to the body of the mechanism that carries a clockwork starting after the apparatus has been set under the action of a return spring secured on one hand to said body and on the other hand to said slideway. The latter is provided with a slot or perforation through which may pass a pin carried by one side of the first gear wheel of the clockwork that is thus started by the thrust exerted by said return spring on the edge of the perforated slideway contacting with said pin. The outline of the perforation includes an active transversal part and a longitudinal part which latter allows the slideway to freely continue its movement when as a consequence of the rotation of the wheel carrying it, the pin is moved out of contact with the transversal part of said perforation.

I have illustrated diagrammatically in accompanying drawings and merely by way of example a form of execution of such a mechanism as used for releasing the shutter of a photographic camera. In said drawings:

Fig. 1 is a longitudinal cross-section of the mechanism when inoperative and showing the slideway in side view.

Fig. 2 is a part view showing the mechanism as seen from above.

Figs. 3 and 4 are similar views showing the mechanism in its set position.

Fig. 5 shows at a reduced scale the delaying mechnaism mounted on a photographic camera.

Fig. 6 is a perspective view showing the mechanism fitted at the end of a yielding control transmission.

The mechanism illustrated may assume the shape of a propelling pencil. Its body **2** serves as a carrier for the delaying means mounted between said body serving as a lower, or inner, plate and an upper, or outer, plate 3 carried by two pillars **4** and **5**. These delaying means include a clock-work **6—7—8—9** ending with an anchor wheel **10** providing for the desired delay. A slideway **11** sliding over the upper plate **3** is guided and held down by the screws **12** and **13**.

To one end **14** of the slideway is secured a rod **15** adapted to produce the release of the shutter, while its other end **16** carries the socket **17** capping and enclosing the mechanism.

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A driving spring **18** is engaged on one hand in the slideway **11** through a screw **19** and on the other hand it is secured through the screw **20** to a lug **21** formed on and at right angles with the body **2**.

Said body **2** is secured through the tubular screw **22** to the head-piece **23** that is provided with an axial channel **24** through which may pass the releasing rod **15**. The tapering end **25** of said head-piece **23** is provided with a conical thread **26** that may be formed on the outer surface of an insert **27**.

The conical thread on said end serves for securing the apparatus directly in the housing **28** (Fig. 5) generally provided on all cameras such as **29** for controlling the shutter through yielding releasing means.

The same apparatus provided with a supplementary arrangement (Fig. 6) may be secured to the end of a flexible member **30** as disclosed hereinafter.

The head-piece **23** of the mechanism is also provided with a knurled flange **31** against which may abut the outer socket **17**, said flange serving also for holding the mechanism in the desired location on the camera.

The operation of my improved mechanism is as follows:

When drawing out the socket **17** in the direction of the arrow **32**, the slideway **11** is carried along that is perforated as shown more particularly at **33** in Fig. 2.

The first wheel **6** of the delaying clock-work carries laterally on the side facing the slideway **11** a pin **34** extending beyond the upper plate **3** and engaging the slot **33** of the slideway.

When the slideway **11** has receved in the direction of the arrow **32** (Figs. 1 and 2), the part **35** of the slot **33** drives said pin **34** that enters a position **34***a* (Figs. 3 and 4). A catch system **37** arranged between the wheel **7** mounted loose on the shaft **38** and a pinion **39** keyed to the same shaft and meshing with the wheel **6** allows the above referred to return movement of the slideway **11** and consequently a rotation of the wheel **6** and pinion **39** without the latter driving the remainder of the delaying clock-work.

When the socket **17** is in the set position illustrated in Figs. 3 and 4, the slideway **11** is urged backwards under the action of the driving spring **18** in the direction of the arrow **40**.

The part **41** of the outline of the slot **33** in the slideway that has entered the position shown in Figs. 3 and 4 drives then the pin **34** that is rigid with the first pinion **6** of the gear work and drives now the clock-work as a whole.

The movement of the slideway **11** in the direction of the arrow **40** (Figs. 3 and 4) is thus slowed down by the gear-work of which the speed of rotation is controlled in a manner well known

per se by the anchor escapement 10; during this movement the rod 15 rigid with the slideway 11 projects more and more beyond the head-piece 23 of the apparatus and provides for the release of the shutter of the camera.

The shape of the slot 33 in the slideway 11 allows a nondelayed drop at the end of the stroke. As a matter of fact, when by reason of the rotation of the wheel 6, the pin 34 has left the position 34*a*, nothing more prevents the sliding of the slideway 11 so that the latter continues progressing freely in the direction of the arrow 40.

When it is desired to make use of the mechanism, the socket 17 is drawn out through one hand while the mechanism is held by the other hand through the knurled part 31 of its head piece 23. At the end of its stroke, the socket 17 is slightly rotated in the direction of the arrow 42 illustrated in Fig. 3 so that the head of the screw 20 that serves simultaneously for securing one end of the spring 18 and for guiding the socket 17 may move laterally out of the slot 43 and bear at 44 against the end of said socket.

The mechanism being thus set and held through its knurled part 31, its threaded conical end 26 is screwed into the part 28 (Fig. 5) of the camera 29 adapted to normally receive the member carrying the yielding transmission controlling the shutter.

For producing a release of the shutter, the socket 17 should be rotated in a direction opposite to that of the arrow 42 (Fig. 3) so as to return the slot 43 in front of the head of the screw 20. The delaying means begins operating and the person using the mechanism has a short time in front of him, say it takes 10 seconds during which he may come into the field of the camera 29.

The delaying mechanism may also be used with a yielding transmission 30, in which case an intermediary strap-shaped part 45 may be resorted to (Fig. 6).

The flange 46 of said strap carries a sleeve 47 the inner bore of which carries the end of the yielding transmission 30. The metal part fitting the end of the transmission sheath is locked inside the sleeve 47 under the action of the screw 48.

The other flange 49 of the strap shows at 50 a tapped hole inside which is screwed the threaded end 26 of the head-piece 23 of the apparatus. The rod 15 is thus adapted to urge forward the knob 51 at the end of the yielding transmission 30 for producing the desired release.

Lastly the mechanism socket may be provided with a hook 32 through which it may be secured in a pocket of the user after the manner of a fountain pen or propelling pencil.

What I claim is:

1. A control mechanism for the delayed operation of camera shutters and the like comprising a socket, a slider provided with a longitudinal slot extending into a lateral recess at its outer end, said slider being rigid with said socket and a control member for the operation of the camera shutters carried by said slider, a body over which said socket is fitted and provided with an open end for the passage of the control member, a clock-work including an escapement carried by said body, a spring urging the slider back into its projecting operative position with reference to the body, an eccentric projection carried by one of the gears of the clock-work parallel to the axis thereof and adapted to engage the slot in the slider, to cooperate with the recess therein for damping the progression of the slider with reference to the body under the action of the spring and then to enter the longitudinal slot proper as the gear carrying it causes it to move round the axis of said gear for allowing an unobstructed progression of the slider under the action of its spring.

2. A control mechanism for the delayed operation of camera shutters and the like comprising a socket, provided at its outer end with a longitudinal slot ending with a lateral recess, a slider provided with a longitudinal slot extending into a lateral recess at its outer end, said slider being rigid with said socket and a control member for the operation of the camera shutters carried by said slider, a body over which said socket is fitted and provided with an open end for the passage of the control member, a clock-work including an escapement carried by said body, a spring urging the slider back into its projecting operative position with reference to the body, an eccentric projection carried by one of the gears of the clockwork parallel to the axis thereof and adapted to engage the slot in the slider, to cooperate with the recess therein for damping the progression of the slider with reference to the body under the action of the spring and then to enter the longitudinal slot proper as the gear carrying it causes it to move round the axis of said gear for allowing an unobstructed progression of the slider under the action of its spring, and a projection on the body engaging the slot in the socket for selectively locking it in its outer position with reference to the slider and allowing relative longitudinal movement between said slider and said socket.

3. A control mechanism for the delayed operation of camera shutters and the like comprising a socket, a slider provided with a longitudinal slot extending into a lateral recess at its outer end, said slider being rigid with said socket and a control member for the operation of the camera shutters carried by said slider, a body over which said socket is fitted and provided with an open end for the passage of the control member, a clock-work including an escapement carried by said body, a spring urging the slider back into its projecting operative position with reference to the body, an eccentric projection carried by one of the gears of the clock-work parallel to the axis thereof and adapted to engage the slot in the slider, to co-operate with the recess therein for damping the progression of the slider with reference to the body under the action of the spring and then to enter the longitudinal slot proper as the gear carrying it causes it to move round the axis of said gear for allowing an unobstructed progression of the slider under the action of its spring and a hook secured to the outer end of the socket for clamping it to any desired support.

GEORGES ALBERT HENRI BUGEAUD.

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