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Loseries et al.

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[45] **Jan. 15, 1974**

[54] **SWINGING-SECTOR CAMERA SHUTTER WITH IMPROVED WARNING INDICATOR**

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[73] Assignees: **Minolta Camera Co., Ltd.,** Osaka, Japan; **Ernst Leitz GmbH,** Wetzler, Germany; part interest to each

[22] Filed: **Mar. 30, 1973**

[21] Appl. No.: **346,576**

[30] **Foreign Application Priority Data**

Apr. 11, 1972 Japan 47/36249

[52] **U.S. Cl.** **95/55**

[51] **Int. Cl.** **G03b 9/36**

[58] **Field of Search** 95/55, 59

[56] **References Cited**

UNITED STATES PATENTS

3,628,438 12/1971 Loseries 95/55

Primary Examiner—Samuel S. Matthews
Assistant Examiner—Michael L. Gellner
Attorney—Gilbert L. Wells et al.

[57] **ABSTRACT**

A swinging-sector camera shutter having a plurality of sectors; each sector has a plurality of blades including a primary blade and a plurality of covering blades. The primary blades execute a combined rotary-sliding motion while the covering blades execute a rotary movement about a common pivot point. The shutter has a control lever which, when the shutter is cocked, seizes and moves successively the operating crank of the first rotary slide and the operating crank of the second rotary slide. The second slide is held in the initial position by a pawl under the tension of a spring which disengages this pawl and which, with its other end, is hingedly connected to the control lever and is tensioned at the beginning of the operation of this lever. The shutter has a holding magnet to which voltage is applied at least when the control lever starts operation and this magnet retains the pawl in the locking position against the force of the spring until the magnet is deenergized by a timer.

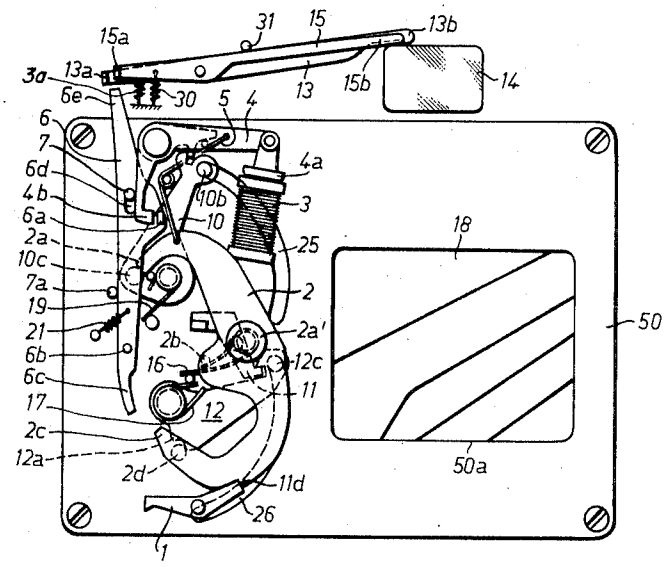
The shutter has a warning indicator comprising:

a. a warning lever which is longitudinally displaceable from a rest position into a functional position on a fixed pin by means of a slotted hole, and which is furthermore tiltable about this pin, one end of which is held, in the rest position, by means of spring force at a fixed abutment outside of the path of the operating crank of the first rotary slide;

b. the warning lever has a first pin which, in the rest position, is in the path of the disengaging armature locking lever for the second rotary slide and, when the armature drops off when the magnet is deenergized, is seized by this locking lever so that the one end of the warning lever is tilted, against spring force, into the path of the operating crank of the first rotary slide and is shifted thereby to such an extent that the armature locking lever slides off the first pin and releases the second rotary slide with a time delay with respect to the first rotary slide, for accomplishing its operating cycle; and

c. the warning lever has a second pin which, when the warning lever is not tilted by the armature locking lever, is in the operational path of the control lever and is longitudinally shifted by the latter so that the first pin is no longer in the path of the dropping off armature locking lever.

4 Claims, 9 Drawing Figures



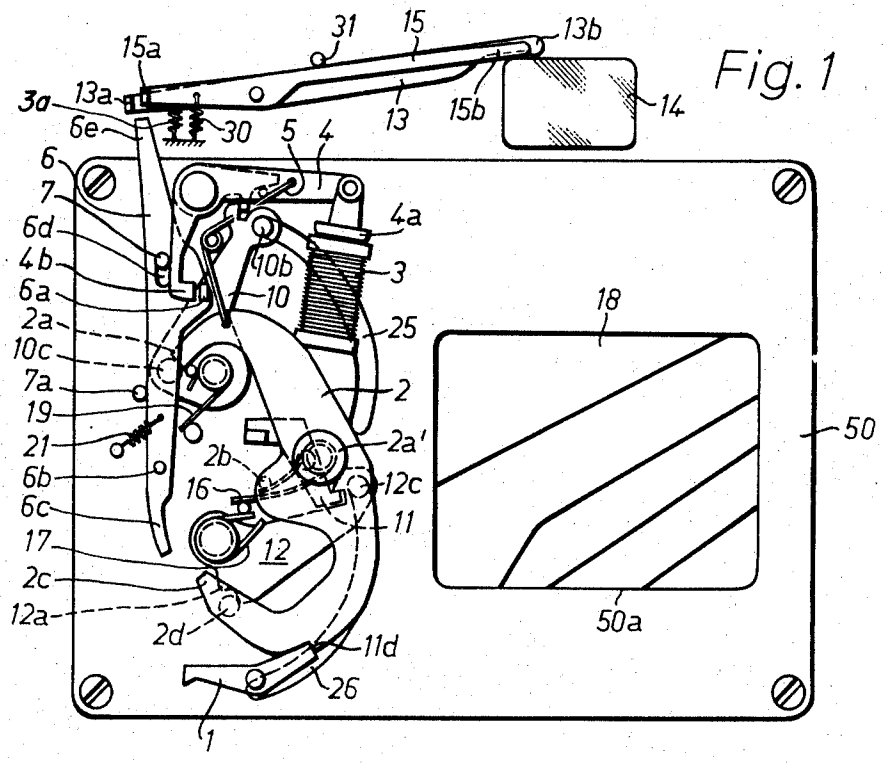

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Fig. 1

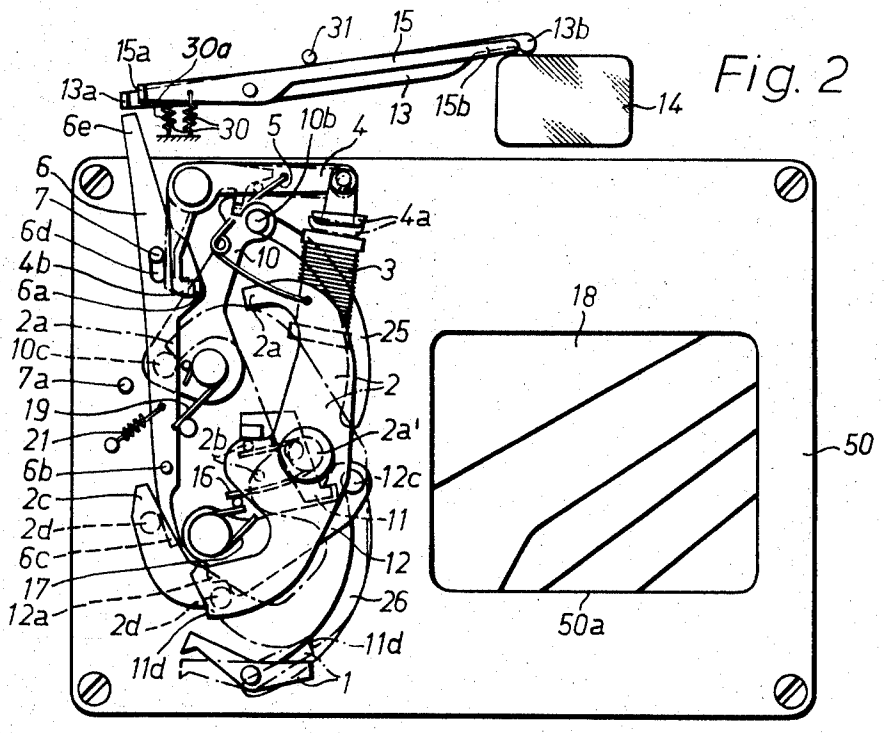
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Fig. 2

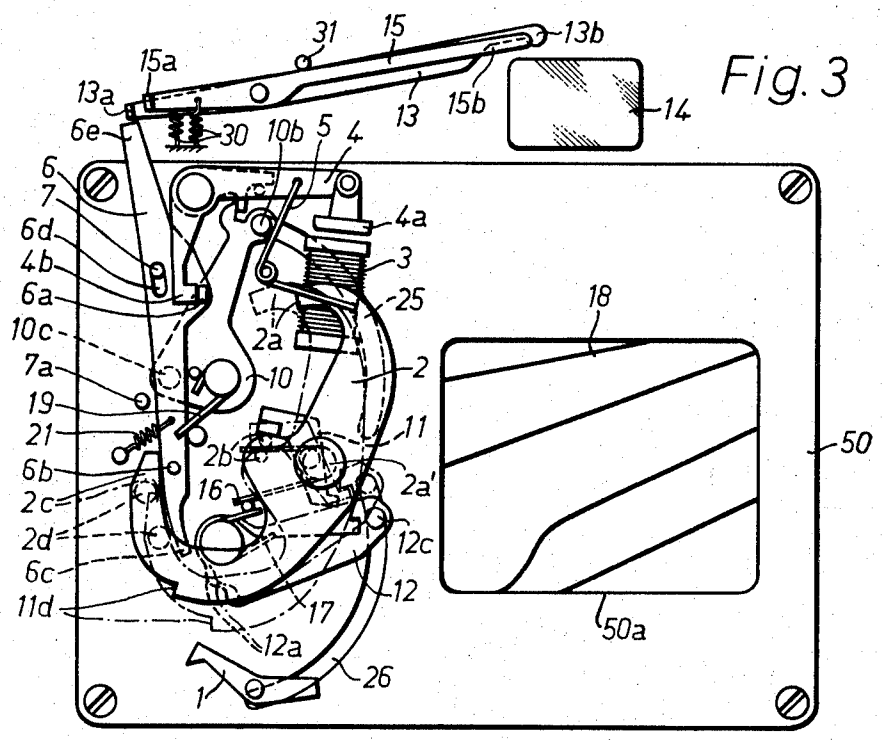
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Fig. 3

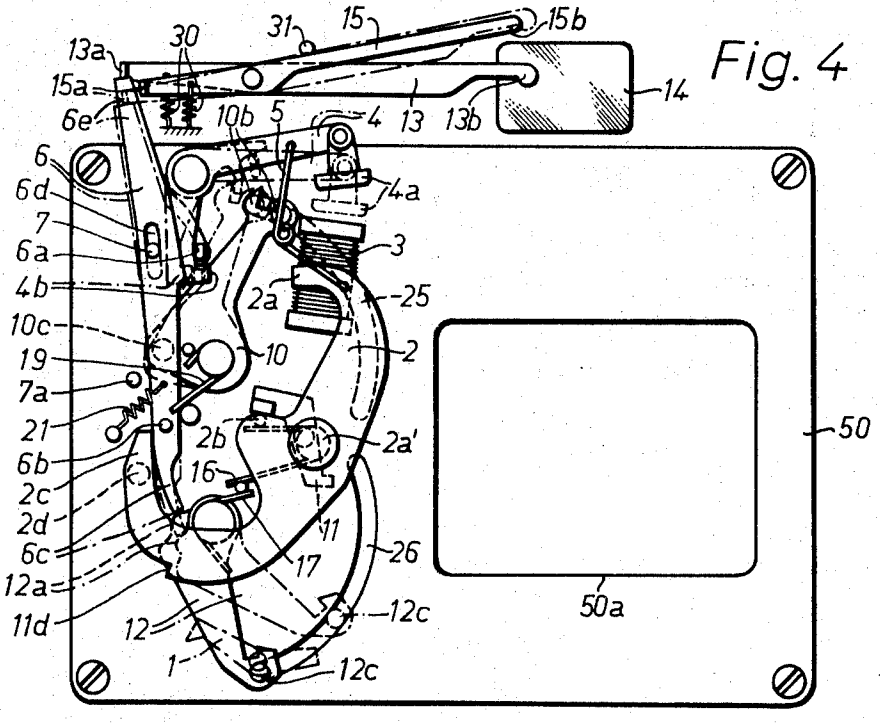
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Fig. 4

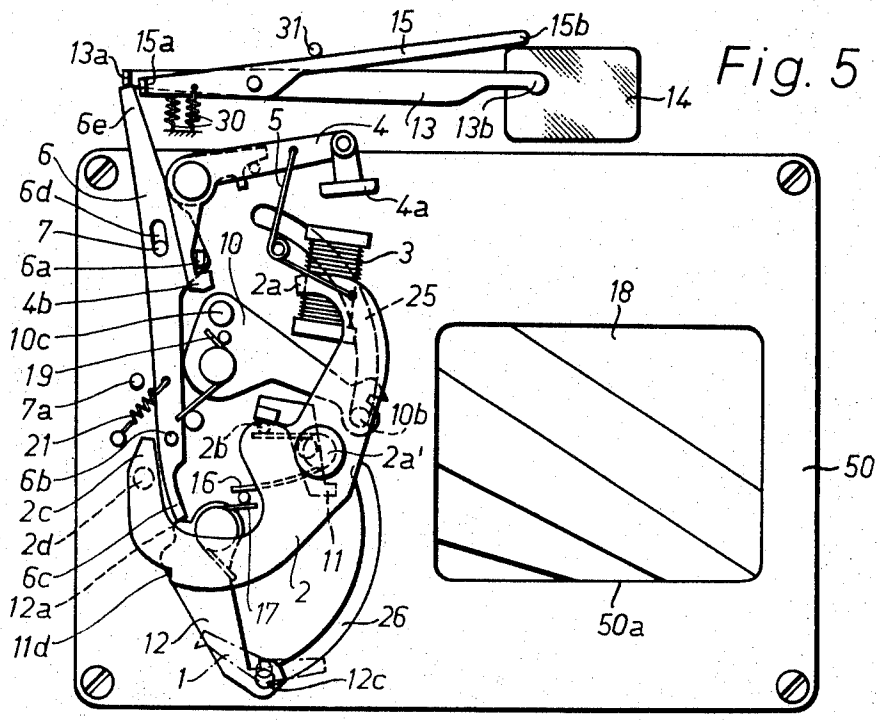
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Fig. 5

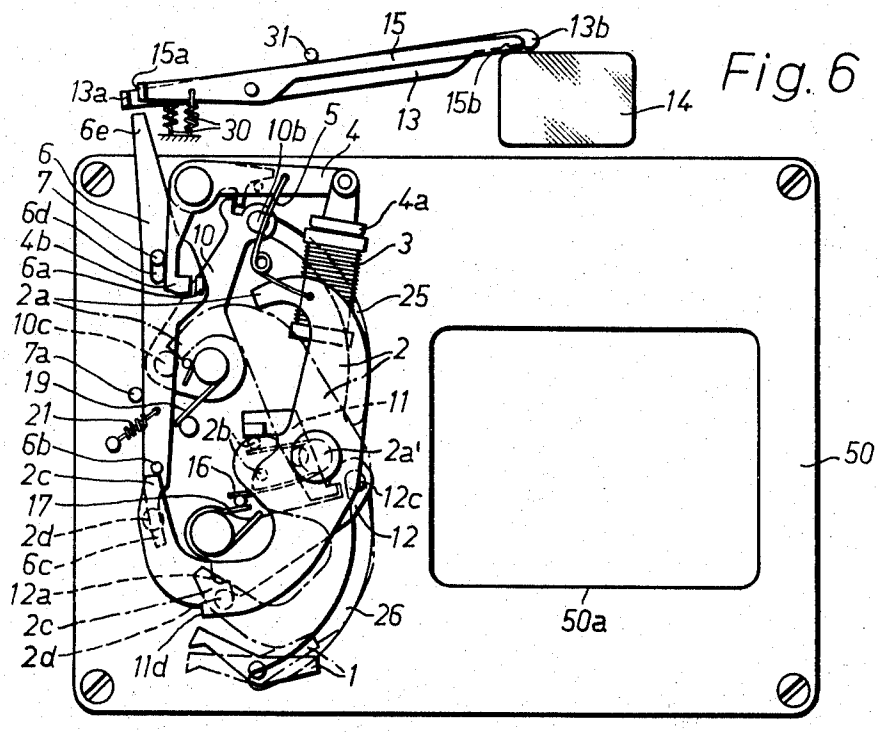
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Fig. 6

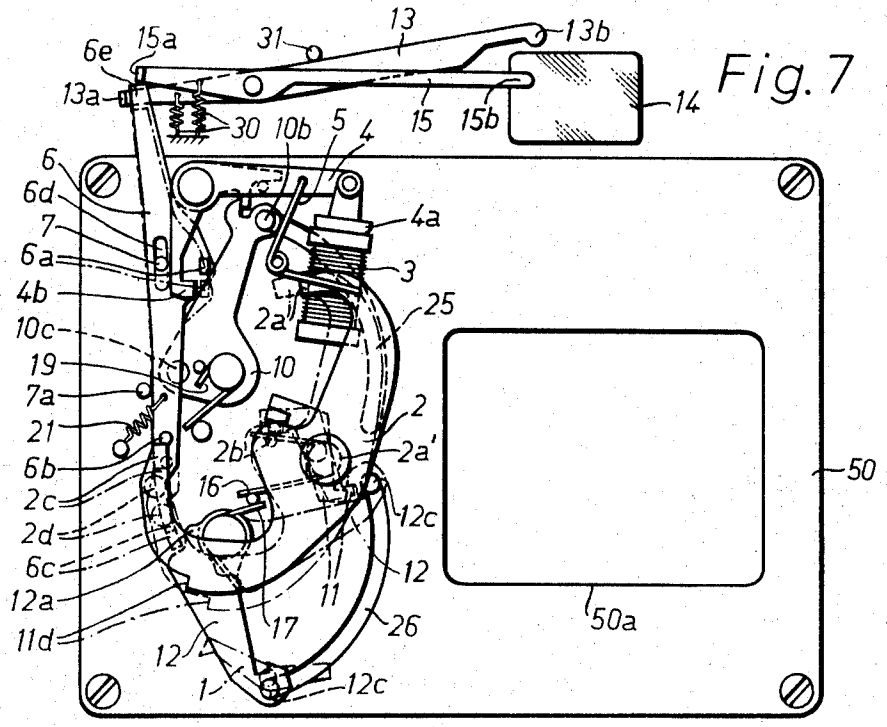
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Fig. 7

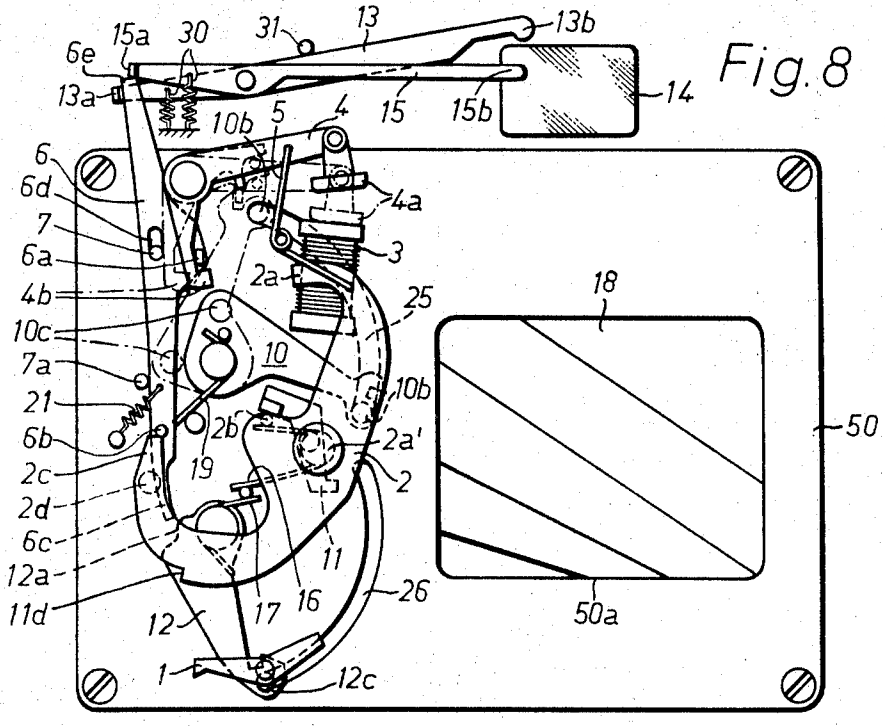
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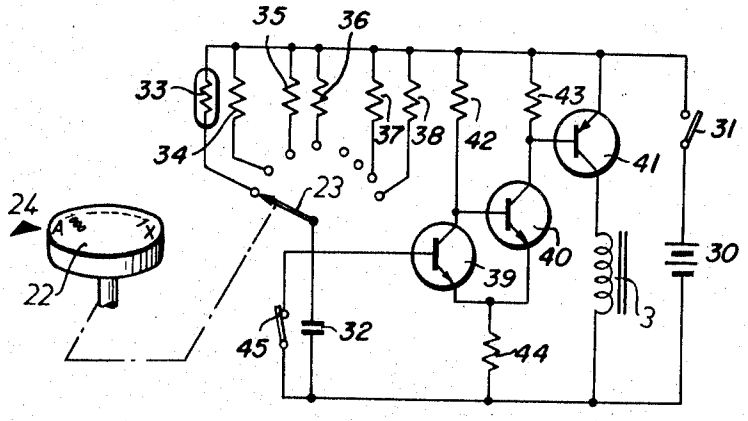
Fig. 8

Fig. 9



SWINGING-SECTOR CAMERA SHUTTER WITH IMPROVED WARNING INDICATOR

CROSS REFERENCE TO RELATED APPLICATIONS

Applicants claim priority under 35 U.S.C. 119 for Application Serial No. Sho-47-36249, filed April 11, 1972, in the Patent Office of Japan.

The disclosure of U. S. Application Ser. No. 267,228, filed June 28, 1972, is incorporated herein to show the state of the art of actuating and control mechanisms for swinging-sector camera shutters. In addition, the disclosure of assignee's copending Application Ser. No. 346,575, filed on the same date as the present application, of Peter Loseries and Toshio Hayashi, and having the title "Swinging-Sector Camera Shutters with Warning Indicator", is incorporated herein.

BACKGROUND OF THE INVENTION

The field of the invention is pivoted blade shutters for photographic cameras. The invention is particularly concerned with actuating and control mechanisms for swinging-sector shutters for photographic cameras wherein the swinging-sectors are divided into a plurality of blades.

The disclosure of U.S. Pat. No. 3,628,438 which shows the state of the art of swinging-sector camera shutters is incorporated herein.

In particular, the present invention is directed to a cocking and control mechanism having a control lever which, when the shutter is cocked, first seizes and moves the operating crank of the first rotary slide and thereafter the operating crank of the second rotary slide, wherein the second slide is held, at the end of the cocking step, by an armature locking lever. The locking lever is held in the blocking position, prior to the beginning of the operation of the shutter, by means of a spring and, after the beginning of the operation of the shutter, by means of a holding magnet, as disclosed in U. S. Patent Application Ser. No. 267,228, filed June 28, 1972.

In such an apparatus, the holding magnet is part of the electronic timer. At the beginning of the shutter release this magnet is energized and retains the armature locking lever in engagement with the second rotary slide until the electronically computed exposure time has elapsed. Thereafter, the magnet is deenergized and the armature locking lever releases the second rotary slide. If the holding magnet is inoperable for some reason, for example because the battery of the electronic timer control device is run down, the second rotary slide, during the release of the shutter, is not held by the armature locking lever, and runs off practically simultaneously with the manually triggered first rotary slide.

In order to draw the attention of the camera operator to such a run down battery, it has been suggested by the prior art, in a reflex camera, to stop a drive member of the reflex mirror in its upward movement by means of an element cooperating with the magnet, so that the half upwardly flipped position of the mirror draws the operator's attention to the run down battery. Another conventional embodiment of the operation of the shutter is possible without shutter opening and simultaneously the film transport lever and the shutter windup lever are blocked against further actuation.

However, both arrangements for warning the camera operator have grave disadvantages. In the former case, the mirror must be pressed back manually, by reaching into the camera opening during its starting position after the convertible objective has been removed. In the latter case, there is the danger that the user will operate the blocked cocking lever with too much force, thus damaging the mechanism.

In a further embodiment of the prior art, the shutter operates in the closed condition, so that no exposure of the film takes place, and simultaneously a warning lever is installed which, with one end, appears in a viewing aperture when the magnet does not respond and the shutter is run off without opening. This embodiment is disclosed in our copending Application Ser. No. 346,575, filed on the same day as the present application.

Although this embodiment represents an improvement of the aforementioned state of the art, because it draws the operator's attention to the inoperative time control circuit, without burdening the user with additional manipulations, there is still the problem that the operator can no longer take pictures with a camera having such an inoperable timer control circuit.

SUMMARY OF THE INVENTION

Therefore, having in mind the limitations of the prior art, it is an object of the present invention to eliminate this problem and further develope the control device of the shutter so that the operator can still continue to take pictures, even after the electronic time control has failed, by means of a mechanical timer. Another object of the present invention resides, accordingly, in providing for switching over between the electronic timing mechanism and the mechanical timing mechanism. This can be selectively operated by the user, for example in order to save the battery of the electronic timing control circuit.

According to the present invention, the problems of the prior art are solved by providing additionally a warning lever which can be longitudinally displaced from a rest position into a functional position by means of a slotted hole on a fixed pin, and is furthermore tiltable about this pin. One end of the pin is held in the rest position by means of spring force at a fixed abutment outside of the path of the operating crank of the first rotary slide. The warning lever is provided with a first pin which, in the rest position, is in the path of the dropping armature locking lever for the second rotary slide and is seized by this locking lever when the armature drops down because the magnet is not energized. One end of the warning lever is tilted, against the spring force, into the path of the operating crank of the first rotary slide and is further shifted longitudinally by this operating crank to such an extent that the armature locking lever slides off the first pin and releases the second rotary slide with a time delay with respect to the first rotary slide for operation. The warning lever has a second pin which, when the warning lever is not tilted by the armature locking lever, is in the operating path of the control lever and is longitudinally displaced by the latter so that the first pin no longer stands in the way of the later dropping armature locking lever.

The time delay in the course of the operation between the first rotary slide and the second rotary slide can be determined relatively simply from a constructional viewpoint and depends primarily on the design of

that portion of the operating crank which cooperates with one end of the warning lever and displaces the latter. Due to the fact that the edge of the operating crank impinging on the warning lever is placed forward or backward to a greater or lesser extent (or due to the fact that the warning lever is made more or less long), the instant of release of the armature locking lever and thus of the operating crank for the second rotary slide can be varied. For this purpose, according to the present invention, such an arrangement or such dimensions are provided that this time delay corresponds approximately to the flash time of the shutter.

In the control device constructed according to the present invention, the warning lever is displaced longitudinally in the case of a mechanical as well as an electronic time computation. However, there is the difference that the lever is additionally tilted beforehand in the case of mechanical triggering. Thereby, the front end of the warning lever appears, during the displacement, in an associated viewing aperture with laterally offset positioning in one case, as compared to the other. It is possible to employ this lateral displacement alone as an indication of the mechanical or electronic time computation.

However, in a further development of the present invention, additionally a first and a second sighting lever are provided, both levers being formed as coaxially arranged rocker arms. On the side opposite to the warning lever, the sighting levers are of different lengths, so that the first lever cooperates with the tilted (and longitudinally displaced) warning lever, whereas the second sighting lever cooperates with the untilted (and longitudinally displaced) warning lever. The other ends of the sighting levers appear, during their tilting, in a viewing aperture, for example in the viewfinder of the camera, and the operator can see from the respectively appearing sighting lever whether the time was formed mechanically or electronically.

Although the possibility of a mechanical timer was provided in the control mechanism primarily in order to make it possible to take a photograph even when the battery of the electronic timer is run down, or when the electronic control circuit is inoperative for other reasons, it is advantageous to provide means to effect the mechanical time computation on purpose. Therefore, a setting is provided in the electronic time control circuit wherein the electromagnet is rendered inoperative. The user of the camera then photographs by means of the mechanical timer. This time, though, is not variable, but rather there is only this one, mechanically computed time of, for example, 1/100 second. However, by adapting this time — taking the variable shutter into account — to the object brightness, the operator can, in this manner, save the battery and prolong the lifetime thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, the invention is shown in one embodiment, to wit:

FIGS. **1 – 5** show schematically in elevational views, the control device of a rotary slide shutter in five functional phases with mechanical time computation;

FIGS. **6 – 8** show schematically in elevational views, three functional phases of the control device of FIGS. **1 – 5** with electronic time computation; and

FIG. **9** is a circuit diagram of the electronic time control circuit.

In FIG. **1**, numeral **50** denotes the shutter baseplate which has an image aperture **50***a*, behind which a first rotary slide of the shutter is visible, consisting of several blades **18.** This is the slide which covers the image aperture in the cocked condition of the shutter. The blades of this slide are moved by means of an operating crank **12,** as well as a pin **12**c attached to the crank and extending through a circular arc slot **26.**

The blades of the second rotary shutter, covering the picture aperture in the released condition of the shutter are, in FIG. **1,** disposed behind the upper part of the baseplate **50,** folded into a pack, as in U.S. Pat. No. 3,628,438. They are moved by means of an operating crank **10,** as well as a pin **10***b* attached to the crank and extending through a circular arc slot **25.** Two helical springs **17** and **18** are provided for moving the operating cranks **10** and **12.** These springs are seated on the respective crank axles.

In the cocked position of the shutter, the operating crank **12** is held by a pawl **11,** while the operating crank **10** is held by an armature locking lever **4** which, in a departure from application Ser. No. 267,228, is constructed as a right angled lever herein.

In order to displace the operating cranks **10** and **12** from a position in the released condition of the shutter into their cocked condition and, later on, for triggering the pawl **11,** a control lever **2** is provided which represents the main element of the control mechanism. The control lever **2** is fixedly disposed on an axle **2***a* and can be rotated together therewith. The control lever is furthermore biased by a spring **16** seated on the axle and tending to rotate the control lever in the clockwise direction, as illustrated in FIG. **1.**

The control lever **2** has two arms **2***e* and **2***c*, as well as a pin **2***b* fixedly disposed on its central portion. One of the arms, namely arm **2***e*, engages a pin **10***c* of the operating crank **10** and, with this engagement, presses the crank **10** back into its tensioned position when the shutter is cocked by rotating the control lever **2** in the counterclockwise direction. An analogous operative connection exists between the arm **2***c* and the operating crank **12** of the first slide, only with the difference that in this case the pin **2**d is fixedly disposed on the arm **2***c*. The pin **2***b* of the control lever cooperates with the pawl **11.** Besides, the control lever **2** additionally has a projecting lug, behind which a pawl **1** engages in the cocked condition of the shutter. This pawl is the actual shutter trigger, which must be actuated if the shutter is to be released for operation.

The armature locking lever **4** furthermore cooperates with a holding magnet so that the pawl **4** is held in engaged position against the force of the spring **5** when the first slide is in operation. The construction is such that the releasing spring force occurs only when the control lever **2** has been released for operation, for this spring **5** is tensioned in the release position by the control lever only when the latter rotates in the clockwise direction.

The heretofore described parts and their functions are already contained in the apparatus disclosed in Application Ser. No. 267,228. Additionally, a warning lever **6** is now provided which is mounted, by means of a slotted hole **6***d*, on a pin **7** fixedly attached to the baseplate. A spring **21** engages the lower end of the warning lever and this spring tends to pivot the lever in the clockwise direction about the pin **7.** This pivoting action is prevented by a pin **7***a* fixedly mounted on the

baseplate. With its lower end, the warning lever **6** extends into the range of motion of the operating crank **12** and can optionally be shifted longitudinally along the pin **7** by means of this crank.

Furthermore, a first sighting lever **13** and a second sighting lever **15** cooperate with the warning lever **6.** These sighting levers are under the force of springs **30** and **30***a* which tend to rotate them in the counterclockwise direction and thus to hold them in engagement with a pin **31** fixedly mounted to the camera. By means of the warning lever **6,** either one or the other of the sighting levers can be tilted against the spring force in the clockwise direction, the free end of the respective lever entering a viewing aperture and thus becoming visible therein to the user.

The mode of operation of the shutter first of all corresponds fully to that described in Application Ser. No. 267,228:

By releasing the pawl **1,** the control lever **2** is freed which rotates, under the force of the spring **16,** in the clockwise direction and finally lifts, with its pin **2***b*, the pawl **11** of the operating crank **12.** Thereupon, the first slide runs through its operating cycle, and the blades **18** uncover the image aperture **50**a (FIGS. **6–8**).

Simultaneously with the beginning of the operation of the control lever **2,** the magnet **3** was energized, and now retains the armature locking lever **4** against the force of the spring **5** and releases the armature locking lever for disengagement only when the electronic circuit has deenergized the magnet **3.** Then, the second slide, driven by the operating crank **10** and the spring **19,** follows the first slide and covers the image aperture **50***a* again.

However, this procedure is not readily possible, because the warning lever **6** has, in its central part, a fixed pin **6***a* which is opposed by the angled part **4***b* of the armature locking lever **4** so that the armature locking lever **4** cannot be pivoted until the release of the operating crank **10,** as long as the pin **6***a* is in the way. However, this pin is moved out of the way by a longitudinal displacement of the warning lever **6.** This is so, because the warning lever **6** has a further, fixed pin **6***b* which, when the time is electronically computed, cooperates with the arm **2***c* of the control lever **2.** The operating control lever **2** contacts this pin **6***b* in the cycle of its operation, as shown in FIG. **6** and displaces the warning lever against the force of the spring **21** in the upward direction as seen in the illustration of FIG. **7.** Thereby, the pin **6**a likewise moves upwardly and vacates the path for the angled part **4**b and thus for the entire armature locking lever **4.** As soon as the armature locking lever has been dropped by the magnet **3,** after an automatic-electronic (by means of a photoconductive cell) or a manual-electronic (with fixed resistors) exposure time, it is pivoted under the force of the spring **5** in the counterclockwise direction and during its pivoting motion triggers the operating crank **10,** so that the second rotary slide follows the first slide and closes the image aperture **50***a* as shown in FIG. **8.**

During its longitudinal displacement, the warning lever **6** has contacted, with its other end **6***e*, the end **15***a* of the second sighting lever **15** and has tilted the latter so that the other end **15***b* thereof appears in the viewing window **14,** which indicates to the operator that the exposure time has been computed electronically.

The mode of operation described hereinabove with reference to FIGS. **6, 7,** and **8** is the normal mode of operation of the control device of the shutter. This mode of operation is characterized in that the warning lever is displaced by the control lever, immediately after the triggering thereof, only in a longitudinal direction in order to remove the operative blockage (pin **6***a*) for the armature locking lever, so that the second rotary slide can follow the first rotary slide after an appropriate time. Furthermore, the warning lever tilts the sighting lever **15** into the viewing window **14,** in order to signal to the user the orderly progression of the shutter operation.

FIGS. **1 – 5** will now be used to describe the manner in which the control device functions when there is no electronic time computation, for example because the battery of the electronic timer control circuit is run down, or because this timer control circuit is defective for some other reason, or also because the user has purposely switched the timer control circuit so that a mechanical time computation takes place.

FIG. **1** shows the initial position of the control mechanism and the shutter. The control lever **2** is in its cocked position and is held therein by means of the pawl **1.** Also, the operating cranks **10** and **12** are in the cocked position wherein the crank **12** is held by the pawl **11** and the crank **10** is held by the armature locking lever **4.** In this initial position, the control lever **2** pulls the armature locking lever **4** with the armature **4**a against the magnet **3** by the aid of the spring **5.**

By lifting off the pawl **1,** the control lever **2** rotates under the force of its spring **16** in the clockwise direction, as shown in FIG. **2.** During this step, the spring **5** is compressed, so that the latter now exerts a force on the armature locking lever **4** which rotates the lever in the counterclockwise direction. In the case where the magnet is energized, this force is first ineffective. Since, in the present case, however, the magnet **3** is not energized, the armature locking lever is immediately rotated in the counterclockwise direction and thus impinges, with its angled portion **4***b*, on the pin **6***a* of the warning lever **6,** and tilts the latter against the force of the spring **21** about the pin **7,** likewise in the counterclockwise direction. This tilting, as illustrated in FIG. **2,** is not yet sufficient for releasing the operating crank **10,** but has three different effects: First, the pin **6***b* is moved out of the way of arm **2***c* of the control lever **2,** so that the warning lever, upon a further rotation of the control lever, cannot be shifted longitudinally further thereby.

Second, however, the lower end **6***c* of the warning lever **6** enters the path of the operating crank **12** for the first rotary slide, especially the path of the edge **12***a* thereof. And third, after the tilting step, the other end **6***e* of the warning lever is disposed opposite to the arm **13***a* of the sighting lever **13** and cooperates therewith during the further course of the operation.

During this further operation, the control lever first continues its rotation until it contacts with its pin **2***b* the pawl **11,** lifts the latter off, and thus releases the operating crank **12** for the first rotary slide for its operating cycle, wherein, of course, the blades **18** uncover the image aperture **50***a*. Toward the end of this operational path, the operating crank **12** impinges with its edge **12***a* from below against the warning lever **6** and displaces the latter in its longitudinal direction upwardly as shown in FIG. **4.** During this step, the pin **6***a* slides off the angled part **4***b* of the armature locking lever **4,** so that now the armature locking lever can further rotate

in the counterclockwise direction under the force of the spring **5**, until the operating crank **10** of the second rotary slide is also ready and freed for operation. The second slide then follows the first slide and again closes the image aperture **50***a*. Thus, there is a certain amount of time between the operation of the first rotary slide and the operation of the second rotary slide during which the film is exposed to the light through the image aperture. This time is equal to the exposure time which, in this case, is formed in a purely mechanical manner.

It is now apparent that this mechanically formed exposure time can be varied within certain limits by the configuration of the cooperating elements. By the length of the warning lever **6** at its end **6***c* and the arrangement of the edge **12***a* at the operating crank **12**, the feature can be determined, for example, whether the crank **12** begins, during its operation, at an earlier or later instant to shift the warning lever by the size of the angled part **4***b* of the armature locking lever **4** in relation to the pin **6***a*, an effect can be exerted on whether the pin **6***a*, during the longitudinal displacement of the warning lever, slides off the part **4***b* at an earlier or later instant. A variation of the mechanically formed exposure time is thus possible, and the constructional dimensions are made so that this mechanically formed exposure time corresponds to the flash time of the shutter, i.e. 1/100 second.

As mentioned above, the warning lever **6**, after its tilting, cooperates with the sighting lever **13**. In other words, when the warning lever is shifted after tilting by the operating crank **12**, it impinges on the end **13***a* of this sighting lever and pivots the other end **13**b thereof into the viewing aperture **14**. However, the end **13***b* is of a different shape, and/or of a different color, than the end **15***b* of the sighting lever **15**, and thus conveys to the operator an indication of how in this case the time formation was carried out.

FIG. **9** shows schematically the circuit of the electronic timing control device. This circuit consists of an RC-member, a threshold value trigger, as well as the magnet **3** energized thereby. A battery **30** is provided as the voltage source, and the entire circuit is fed with a voltage by means of a main switch **31**. The RC-member consists of the capacitor **32**, as well as either a photoconductive cell **33** or one of several fixed resistors **34** to **37**, which are staggered in correspondence with the standardized shutter time series, i.e. r_{2000}, r_{1000}....r_1. Furthermore, another fixed resistor **38** (r_x) is provided. By means of the potential of the capacitor **32**, the threshold switch is controlled conventionally. This switch consists of the transistors **39** to **41** in a trigger circuit. The transistor **39** thereof, which was first blocked, is made conductive when a specific capacitor voltage has been reached, whereupon the transistor **41** is simultaneously in the blocking condition and thus the magnet **3** is deenergized.

The RC-circuit has therein fixed resistors **42** to **44**. The variable resistor pertaining to the RC-circuit, including the photoconductive cell, are connected to the capacitor by means of a circuit wiper **23**. This is effected by setting a setting means **22** operatively connected with the circuit wiper **23**, which setting means can be adjusted with respect to an index **24**. The setting means is provided with markings A, 1000 – 1, in the known staggering of the exposure times and with a marking X corresponding to resistance **38**.

When set to A (= automatic), the capacitor with the photoconductive cell **33** is connected to an RC-member, and the magnet is cut off directly in dependence on the brightness of the object. When set to one of the markings 2000 to 1, respectively, the corresponding fixed resistor is activated, and the magnet then is deenergized after respectively the elapse of the corresponding time period, i.e., for example after 1/1000 second or 1/60 second, or the like.

When set to X, the resistor **38** is inserted, which is so low-ohmic that the magnet is deenergized almost immediately, after the control lever **2** has commenced operation. In this case, the angled part **4***b* of the armature locking lever **4** impinges on the pin **6***a*, and the time is formed mechanically. Thus, the operator must set the setting means **22** to X if a mechanical time formation is desired.

In a conventional manner, a short-circuiting switch **45** is provided for the capacitor **32**, which switch is opened by the control lever **2**, for example when the first rotary slide begins operation, and thus makes it possible to charge the capacitor in the RC-circuit.

We claim:

1. In a swinging-sector camera shutter having an image aperture and first and second swinging sectors, each swinging sector including a primary blade and a plurality of covering blades and being adapted for movement to and fro across said image aperture, and means cooperating with the primary blade of each said swinging sector to provide a combined rotary-sliding motion thereof in which the sliding component of motion extends substantially in the direction of the leading edge of the primary blade, means for actuating and tensioning said first and second swinging sector, means for providing a time delay between the actuation of said first and second swinging sectors, said means for actuating and tensioning comprising a control lever having first and second control surfaces, first latching means latching said lever and second latching means connected to a solenoid magnet, said solenoid magnet connected to said means for a time delay, said means for a time delay having a switch actuated by said first control surface, said first control surface connected to a first operating crank which in turn is connected to said means cooperating with the primary blade of said first swinging sector, said second control surface connected to a second operating crank which in turn is connected to said means cooperating with the primary blade of said second swinging sector, the improvement comprising:

a. a warning lever having a slotted hole (**6**d) for mounting on a fixed pin (**7**) to make said warning lever longitudinally displaceable and tiltable about said fixed pin, said warning lever having a first end (**6***c*) and a second end (**6***e*), said first end spring biased against an abutment (**7***a*) outside the range of motion of said first operating crank;

b. said warning lever having a first pin (**6***a*) for contacting said second latching means (**4**) when said solenoid magnet is deenergized to tilt said first end into the range of motion of said first operating crank, said first pin subsequently disengaging said second latching means and said second latching means releasing said means for actuating said second swinging sector; and

c. said warning lever having a second pin (**6***b*) in the range of motion of said control lever and being lon-

gitudinally shifted by said control lever to remove said first pin from the range of motion of said second latching means when said warning lever is not tilted.

2. The swinging-sector camera shutter of claim 1, wherein said first operating crank (12) has a crank part (12*a*) with said first end, said second latching means has an angled part (4*b*) cooperating with said first pin, the configuration of said crank part, said first end and said angled part defining a time delay corresponding to the flash time of the shutter.

3. The swinging-sector camera shutter of claim 1, further comprising a viewing aperture, a first and a second sighting lever (13, 15) which can be tilted, independently of each other, against spring force about a common axis so that one end thereof (13*b*, 15*b*) appears in said viewing aperture (14), and the other ends (13*a*, 15*a*) thereof are disposed side-by-side so that said second end of said warning lever, in the tilted and longitudinally displaced condition, cooperates with said first sighting lever (13) signaling the mechanical time formation and, in the untilted, longitudinally displaced condition, cooperates with the second sighting lever (15) signaling an electronic time formation, and tilts these respectively into the viewing window.

4. The swinging-sector camera shutter of claim 3, wherein said means for providing a time delay is an electronic circuit having a plurality of positions corresponding to specific exposure times wherein RC-members with different fixed resistors are employed, a position "X" wherein the switched-on fixed resistor (R_x) is low-ohmic so that the solenoid magnet is deenergized so that the time is formed mechanically.

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