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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Pivoted Mirror Reflex Photographic Camera

We, FRANKE & HEIDECHE, G.M.B.H., a German body corporate, trading as ROLLEI-WERKE FRANKE & HEIDECHE, of 196 Salz-dahlumerstrasse, Braunschweig, Germany, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a pivoted mirror reflex photographic camera in which, when the mirror is in the rest position it is positioned for focusing and is returned to this position after making an exposure. It is an object of the invention to enable the mirror to return to the rest position, independently of the operation of the shutter release member.

According to the invention there is provided a pivoted mirror reflex photographic camera, in which the mirror, in the rest position, is positioned for focusing and is returned to this position after making an exposure, comprising a crank drive for the mirror, which drive is tensioned by the film winding and/or the shutter setting mechanism, and includes a toothed locking disc which is freed by an actuating member with simultaneous uncoupling of a first running-down lock so that the mirror is progressively pivoted from the focusing position into the exposure position and then back into the focusing position, and a second running-down lock for said toothed disc operative when the mirror is positioned for an exposure, said second lock co-operating with the shutter in such a way that, the shutter is released for running down by the engagement of said second lock, the latter being thereafter disengaged by completion of the shutter run down.

One embodiment of the invention is shown by way of example in the accompanying drawings, only those parts necessary for an understanding of the invention being illustrated. In said drawings:

Figure 1 shows the crank drive mechanism in the rest position of the mirror;

Figure 2 shows the position at the start of the unwinding or running-down movement; and

Figure 3 shows the mechanism in the exposure position.

Referring to the drawings, the numeral 1 designates a manually operable, pivoted actuating or release member which is connected through a pin-and-slot coupling 1a, 2a to one end of a draw-bar 2. The other end of the draw-bar is formed with a projection 20 co-operable with a tail 19 of a spring-loaded locking pawl 3 urged to engage a rotatable disc 4 formed with a peripheral locking tooth 17. A link 5 pivoted on a pin 14 on the disc 4 connects said disc to a pin 7 on a crank arm 6 which is pivoted at 22 in the camera housing, said crank arm having the focusing mirror 21 secured thereto. The disc 4 is loaded in the clockwise direction of rotation by a spring (not shown).

The pawl 3 is pivotally mounted on a spindle 3a on which is also mounted a lever 8 which supports the draw-bar 2 through a pin-and-slot connection 15, 16. The lever 8 is formed with a shoulder 8a co-operable with the end 9a of one arm of a two-armed lever 9, the other arm of said lever terminating in a lug 13. A lever 10 is formed with a projection 18 engaging the periphery of the disc 4 and also has a tail 11 co-operating with the shutter (not shown).

In the release position of the member 1 as shown in Fig. 2, the locking pawl 3 is withdrawn from the disc tooth 17, and the disc then rotates in the clockwise direction. As the disc 4 runs down, the pin 14 turns the lever 8 in the counter-clockwise direction to engage the shoulder 8a with the end 9a of the lever 9 (Fig. 3). In this position the draw-bar 2 is rocked clockwise about the pin-and-slot coupling 1a, 2a to release the tail 19 of pawl 3 from projection 20 so that the pawl re-engages with the periphery of disc 4. As the disc 4 rotates, it enables lever 10

to rock in the clockwise direction, and when the disc is arrested, after half a revolution, by the engagement of the tooth 17 with the projection 18 on said lever 10, the displacement of the tail 11 of lever 10 permits the shutter to run down. The mirror has by this time reached its upper position and actuates the preselection diaphragm in known manner.

When the shutter has run down, the tail 11 is actuated, for example by a roller curtain, to rock lever 10 in the counter-clockwise direction, whereby the disc 4 is freed and then rotates through another 180°, bringing the mirror back to the rest or view-finding position and again opening the diaphragm. During this further rotational movement of the disc, the tooth 17 trips a lever 12, which unlocks the shutter winding mechanism. During setting of the shutter, which is coupled to the film winding mechanism, the lever 9 is pivoted through the lug 13 in the clockwise direction so that it releases the lever 8. As a result, the pawl tail 19 engages the projection 20 on draw-bar 2, so that when the operator releases the actuating member 1, the position according to Figure 1 is restored. Thus a new release operation is possible only after setting of the shutter.

The arrangement according to the invention differs from the known arrangements having a mirror which returns automatically to the original position by its simplicity and reliability in operation and the independence thereof on the duration of actuation of the release member. It is only necessary to have a crank drive for the mirror and a locking toothed disc on the driving shaft, which co-operates alternately with the unwinding lock and with the shutter. On the contrary, with the known arrangements for solving the same problem, for example, according to U.S. Patent Specifications Nos. 2,952,196 and 2,952,197, a power storage device for driving the mirror must be changed over after unwinding of the

shutter, so that it returns the mirror into the position for focusing.

WHAT WE CLAIM IS:—

1. A pivoted mirror reflex photographic camera, in which the mirror, in the rest position, is positioned for focusing and is returned to this position after making an exposure, comprising a crank drive for the mirror, which drive is tensioned by the film winding and/or the shutter setting mechanism, and includes a toothed locking disc which is freed by an actuating member with simultaneous uncoupling of a first running-down lock so that the mirror is progressively pivoted from the focusing position into the exposure position and then back into the focusing position, and a second running-down lock for said toothed disc operative when the mirror is positioned for an exposure, said second lock co-operating with the shutter in such a way that, the shutter is released for running down by the engagement of said second lock, the latter being thereafter disengaged by completion of the shutter run down.

2. A pivoted mirror reflex photographic camera according to Claim 1, wherein the first running-down lock includes a pawl arranged on a pivotable and displaceable lever, said lever being actuable to uncouple the pawl from said actuating member upon commencement of the running down of the toothed disc and then to return the pawl towards a position in which, upon release of the actuating member, the pawl is again coupled to said member.

3. A pivoted mirror reflex photographic camera substantially as described with reference to and as illustrated in the accompanying drawings.

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