

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN AND RELATING TO CAMERAS

(71) We, AGFA-GEVAERT AKTIEN-GESELLSCHAFT, a body corporate organised according to the Laws of Germany, of Leverkusen, 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:—

The present invention relates to camera having a control member arranged during movement between open and closed positions to carry out film transport and/or tensioning of the shutter and which is arranged in the closed position to cover certain components of the camera.

A camera of the above type is described and claimed in United Kingdom Patent Application No. 14617/73 (Serial No. 1,413,420).

The invention provides a camera which comprises a camera housing and a control member which is slidably mounted on the housing and movable between a closed position, in which it covers certain components of the camera, and an open position in which the said components are uncovered, the control member being arranged during movement between the said positions to carry out film transport and/or tensioning of the camera shutter, and there is provided resilient means tending to urge the control member into the open position, the resilient means comprising at least one pair of legs and the legs of the or each pair are coupled at one end, the other end of one of the legs engaging the housing and the other end of the other leg engaging the control member and the arrangement being such that the resilient means tends to increase the angular separation of the legs from a minimum angular separation in the said closed position to a maximum angular separation in the said open position.

In this way the resilient means may be arranged in a relatively small space while still enabling a relatively large displacement of the control member relative to the housing.

Advantageously, the coupling between the said one ends of the or each pair of legs is free to move relative to both the housing and the control member. Preferably, the resilient means comprises at least one helical twist spring. The use of a freely moving coupling and a helical spring coupling gives a particularly uniform force characteristic over the full range of movement.

To avoid distortion of the coils of the or each spring these may be arranged on a shaft which is preferably flanged at each end to retain the spring in position.

One form of camera constructed in accordance with the invention will now be described by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of the camera, partly broken away in a closed position,

Fig. 2 is a view of part of the camera shown in Figure 1 in an operative position, and

Fig. 3 is a plan view of part of the camera shown in Fig. 1.

In the accompanying drawings, the housing of a still camera is indicated by 401 and a movable control member, which is joined to the housing 401 and when closed up to the housing 401 covers, for example, the viewfinder and lens as a protective cover, is indicated by 402. In the open position of the movable member 402 (as shown in Fig. 2), the camera 401 is ready for operation, the viewfinder and lens being uncovered. The movable member 402 at the same time, in a manner known *per se*, acts as a cocking slide, which, when pushed in the direction of the arrow 403, by a known means, for example, a rack, advances the film and/or cocks the shutter. A spring 404 is arranged between the camera housing 401 and the member 402 and tends to urge the member 402 into the open position so that it is ready for film advance. If the film is to be advanced, the member 402 is moved in the direction of the arrow 403 until it reaches its end position, and it is then released. Upon the action of the spring 404 it is then re-

turned to the open position in which a further film advance is possible after an exposure has been made.

There is, as described in United Kingdom Application No. 14617/72 (Serial No. 1,413,420) provided in the camera housing 401 a suitable locking mechanism which when the camera is not in use enables the member 402 to be locked in the closed position, but which in the common case of repeated successive shutter-cocking avoids locking so that the spring 404 can become effective.

As shown in the accompanying drawings the spring 404 comprises a pair of legs 404a and 404b of which one leg 404a engages the camera housing 401, and the other leg 404b engages the inside wall of the member 402. Coils 404c coupling the legs 404a and 404b however, lie freely in a chamber 406 between housing 401 and member 402. For the uniform distribution of force, two similar springs 404 are provided. To avoid deformation of the coils these are arranged on a shaft 405 which has flanges 405a to prevent it from sliding out of the coils 404c. The shaft 405 and the coils 404c are freely suspended in the chamber 406 on the legs 404a and 404b. If the member 402 is moved in the direction of arrow 403, the legs 404a and 404b are pressed together and the shaft 405 is moved with the coils 404c to the position shown in Figures 2 and 3. In the closed position, the spring 404 only requires very little space. In spite of this the spring force, when the spring is released, is distributed substantially uniformly over the entire slide path.

The ends of the legs 404a and 404b may be supported in any known manner in the housing 401 and on the member 402, for example, by means of a bent end 404d lying between two housing lugs 401a and 401b, or by means of a fork 404e engaging a lug 402a.

WHAT WE CLAIM IS:—

1. A camera which comprises a camera housing and a control member which is slidably mounted on the housing and mov-

able between a closed position, in which it covers certain components of the camera, and an open position in which the said components are uncovered, the control member being arranged during movement between the said positions to carry out film transport and/or tensioning of the camera shutter, and there is provided resilient means tending to urge the control member into the open position, the resilient means comprising at least one pair of legs, and the legs of the or each pair are coupled at one end, the other end of one of the legs engaging the housing and the other end of the other leg engaging the control member and the arrangement being such that the resilient means tends to increase the angular separation of the legs from a minimum angular separation in the said closed position to a maximum angular separation in the said open position.

2. A camera as claimed in claim 1, wherein the coupling between the said one ends of the or each pair of legs is free to move relative to both the housing and the control member.

3. A camera as claimed in claim 1 or claim 2, wherein the resilient means comprises at least one helical twist spring.

4. A camera as claimed in claim 3, wherein the coils of the or each spring are arranged on a shaft.

5. A camera as claimed in claim 4, wherein there is provided at each end of the shaft, a flange to retain the spring in position.

6. A camera as claimed in any one of claims 3 to 5, wherein, when there is more than one spring a leg of one of the springs is interconnected with a corresponding leg of one or more of the other springs.

7. A camera substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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