

SPECIFICATION

Photographic camera with built-in electronic flash unit

This invention relates to a photographic camera of substantially rectangular shape having a longitudinal dimension transverse to the optical axis of the camera and having a built-in electronic flash unit at one end of the camera. Such a camera will be referred to hereinafter as "of the type described". A well-known camera of the type described is that arranged to receive "110" size film cartridges.

In order correctly to make flash exposures using a camera of the type described, the camera must be gripped in such a manner as not to obscure the flash unit with the operator's hand. In making daylight exposures, this restriction does not apply and, in consequence, it is not unusual for an operator to forget to hold the camera correctly when making a flash exposure with the result that the picture so taken is incorrectly exposed. Further, the small volume and low weight of cameras of the type described tend to result in camera shake when the shutter is depressed causing the resultant pictures to be blurred.

Cameras of the type described, but without an in-built electronic flash unit, having a handle are known. The provision of a handle minimizes camera shake and permits pre-determined easy handling of the camera.

Cameras of the type described are generally relatively long and the provision of a known handle (equal to the length of the camera body) would cause the handle to be unduly long and cumbersome.

It is an object of the present invention to provide an improved camera of the type described wherein the aforesaid disadvantages are overcome or minimized.

According to the present invention, there is provided a camera of the type described having a handle arranged for pivotable movement between an inoperative position, in which it extends parallel to and adjacent the camera body and an operative position, about a pivot axis parallel to the optical axis and located between the taking lens and the flash unit, the handle having arms each secured to a respective pivot of the handle and of length at least equal to the distance of the pivot axis from that end of the camera whereas the flash unit is situated.

Such a camera handle may be so arranged as to effect other functions such as providing a lens and/or viewfinder and/or shutter release cover in a manner known per se and may also be arranged to ensure that the power supply to the electronic flash unit is disconnected when the handle is not in its operative position. Thus, before such a camera can be used for making daylight and/or flash exposures, the operator must move the handle to the operative position. With the handle in the operative position, the possibility of an operator obscuring the flash unit, is avoided when holding the camera by the handle.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 is a front view of a camera according to the present invention with its handle in the operative position;

Fig. 2 is a view of the camera with its handle in the inoperative, closed, position;

Fig. 3 is a perspective view of the camera shown in Fig. 2;

Fig. 4 is a part-sectional diagrammatic view of a camera according to the invention possessing a flash unit switch-off feature; and

Fig. 5 is a view, similar to Fig. 4 of a camera having an alternative flash unit switch-off feature.

A camera, constructed in accordance with the present invention, has a rectangular body 1 having a longitudinal dimension transverse to the optical axis of an objective lens 5 of the camera. An electronic flash unit 2 is built-in to the camera 1 adjacent one end thereof. The camera has a viewfinder 4 and a shutter release 6.

A handle 3 is pivotally mounted on the camera by means of pivots 3a on the front and rear sides of the camera between the lens 5 and the flash unit 2. The handle 3 comprises arms 3b each secured by one end to the respective pivot 3a and of length equal to the distance between the respective pivot 3a and the end of the camera adjacent which the flash unit 2 is located. A trough-shaped cover 3c is secured to each of the arms 3b at the ends thereof remote from the pivots 3a. The cover 3c can be pivoted from an in operative position shown in Fig. 2 round that end of the camera adjacent which the flash unit 2 is located to an operative position shown in Fig. 1 and defined by a stop surface 1a of the camera wherein it forms a handle whereby the camera 1 may be held by an operator.

In the inoperative position (Fig. 2) the cover 3c protects the viewfinder 4, the lens 5 and the shutter release 6. After pivoting in a clockwise direction (from the position seen in Fig. 2) into contact with the stop surface 1a, the handle formed by the cover 3c is in the operative position and the camera can be used. An operator gripping the handle cannot then obscure the flash unit 2 so that incorrect flash exposures cannot be made and, moreover, camera shake is minimized with the camera so held.

There is a tendency for camera operators to forget to switch off the power to the electronic flash unit after taking pictures by flash. This can be overcome by causing the power circuit to the flash unit to be interrupted on moving the cover 3c back to the inoperative position; a function which must necessarily be effected by the operator before putting the camera away.

Fig. 4 shows a camera according to the invention modified to include this feature. The camera there shown has a manually operable slider 7 for adjusting the camera according to, for example, weather conditions, and the slider 7 has an end position corresponding to the selection of the electronic flash exposure mode of the camera

1. The slider 7, in this position, closes a switch to connect the flash unit 2 to a power source (not shown). Means 8 (shown as a simple leaf spring) are provided on the inside of the cover 3c for engaging a projection 9 on the slider 7 as the cover 3c is moved to its inoperative position, to move the slider 7 from the selected electronic flash mode to, for example, a position corresponding to "cloudy" thereby interrupting the power supply to the electronic flash unit 2.

Fig. 5 shows a fragmentary part of a further camera according to the invention in which another form of flash unit switch-off is provided. In this embodiment a switch 10 is provided. The switch 10 comprises a contact 10c movable by a cam surface 3d of the pivot 3a when the handle has been moved to its operative position to engage a battery contact 11 of the camera. Such engagement, if the flash mode has been selected, completes the power circuit of the electronic flash unit 2 by connecting a battery 12 with the charging circuit of the electronic flash unit. Conversely, when the handle is moved to its inoperative position, the cam surface 3d of the pivot 3a disengages the contact 10c to allow it to move away from the battery contact 11 so that the circuit is interrupted. If the flash mode had been selected, then this opening of the circuit ensures that battery drain is prevented when the camera is not in use.

This feature of battery switch-off can be effected in many ways using the closure of the handle to its inoperative position and the

foregoing two embodiments are only examples.

35 CLAIMS

1. A camera of the type described having a handle arranged for pivotable movement, between an operative position in which it extends parallel to and adjacent the camera body and an operative position, about a pivot axis parallel to the optical axis and located between the taking lens and the flash unit, the handle having arms each secured to a respective pivot of the handle and of length at least equal to the distance of the pivot axis from that end of the camera whereat the flash unit is situated.

2. A camera as claimed in Claim 1 wherein the handle comprises a trough shaped cover arranged, in the inoperative position of handle, to protect the lens, the viewfinder and/or the shutter release.

3. A camera as claimed in Claim 1 or 2 further including stop means on the camera body defining the operative position to which the handle can be pivoted and so located that, when the handle is gripped by an operator, the flash unit is not obscured.

4. A camera as claimed in any of Claims 1 to 3 further including means for interrupting a power circuit of the flash unit on movement of the handle to its inoperative position.

5. A camera of the type described and substantially hereinbefore described with reference to Figs. 1 to 3 or Figs. 1 to 3 as modified by Fig. 4 or Fig. 5 of the accompanying drawings.



1. The slider 7, in this position, closes a switch to connect the flash unit 2 to a power source (not shown). Means 8 (shown as a simple leaf spring) are provided on the inside of the cover 3c for engaging a projection 9 on the slider 7 as the cover 3c is moved to its inoperative position, to move the slider 7 from the selected electronic flash mode to, for example, a position corresponding to "cloudy" thereby interrupting the power supply to the electronic flash unit 2.

Fig. 5 shows a fragmentary part of a further camera according to the invention in which another form of flash unit switch-off is provided. In this embodiment a switch 10 is provided. The switch 10 comprises a contact 10c movable by a cam surface 3d of the pivot 3a when the handle has been moved to its operative position to engage a battery contact 11 of the camera. Such engagement, if the flash mode has been selected, completes the power circuit of the electronic flash unit 2 by connecting a battery 12 with the charging circuit of the electronic flash unit. Conversely, when the handle is moved to its inoperative position, the cam surface 3d of the pivot 3a disengages the contact 10c to allow it to move away from the battery contact 11 so that the circuit is interrupted. If the flash mode had been selected, then this opening of the circuit ensures that battery drain is prevented when the camera is not in use.

This feature of battery switch-off can be effected in many ways using the closure of the handle to its inoperative position and the

foregoing two embodiments are only examples.

35 CLAIMS

1. A camera of the type described having a handle arranged for pivotable movement, between an operative position in which it extends parallel to and adjacent the camera body and an operative position, about a pivot axis parallel to the optical axis and located between the taking lens and the flash unit, the handle having arms each secured to a respective pivot of the handle and of length at least equal to the distance of the pivot axis from that end of the camera whereat the flash unit is situated.

2. A camera as claimed in Claim 1 wherein the handle comprises a trough shaped cover arranged, in the inoperative position of handle, to protect the lens, the viewfinder and/or the shutter release.

3. A camera as claimed in Claim 1 or 2 further including stop means on the camera body defining the operative position to which the handle can be pivoted and so located that, when the handle is gripped by an operator, the flash unit is not obscured.

4. A camera as claimed in any of Claims 1 to 3 further including means for interrupting a power circuit of the flash unit on movement of the handle to its inoperative position.

5. A camera of the type described and substantially hereinbefore described with reference to Figs. 1 to 3 or Figs. 1 to 3 as modified by Fig. 4 or Fig. 5 of the accompanying drawings.