

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 Luverkusen, 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:

10 The invention relates to cameras.

It has previously been proposed to provide a camera comprising a first body part and a second body part, wherein the parts are slidable relative to each other laterally with respect to the optical axis of the camera objective between a retracted position and an extended, picture-taking, position, one or more camera components being covered in the retracted position and uncovered in the extended position.

In certain forms of such previously proposed cameras, a gap appears between the two body parts when in the extended position and it is possible to catch an eyelid in the gap when looking through the viewfinder, or to jam a finger in the gap by clumsy handling.

The invention provides a camera comprising a first body part and a second body part, the parts being slidable relative to each other laterally with respect to the optical axis of the camera objective between a retracted position and an extended, picture-taking, position, one or more camera components being covered in the retracted position and uncovered in the extended position, and wherein a gap is defined by the first and second body parts on the camera exterior in the region of the part of the camera that is held to the eye for picture-taking, in such a way that the gap becomes narrower as the body parts are moved towards the retracted position, and wherein one of the body parts has covering means so disposed at the back of

the camera that the covering means is interposed, in use, between the gap and the camera user when the camera is held to the eye for picture-taking.

The provision of the covering means reduces or eliminates the risk of catching an eyelid or jamming a finger when the camera is held to the eye and when the body parts are moved relative to each other.

Advantageously, the covering means is movable to permit access to a compartment in the camera. By forming the covering means as, or as a part of, a closure for a compartment in the camera, it is possible to bridge the gap without requiring a separate member which is not necessary for other functions in the camera. Preferably, the compartment is a film chamber accessible from the back of the camera. Preferably, the covering means extends over substantially the whole length of the camera when the body parts are in the retracted position. The covering means may extend beyond the film chamber. The covering means may extend over substantially the whole area of the back of the camera when the parts are in the retracted position.

Preferably, the compartment is in one of the body parts and the edges of the compartment against which the covering means abuts are co-planar with one surface of the other body part and define at least part of the length of the gap there between, and the covering means extends over the said one surface of the other body part.

Preferably, a viewfinder is mounted in that body part which has the covering means, the viewfinder being covered by the other body part in the retracted position, and the covering means has a viewing window therein in alignment with the viewfinder. In this way it is possible for a camera user to move the body parts repeatedly from extended to retracted

positions without moving the camera from the normal viewing position and without any risk of catching any part of the face between the two body parts.

- 5 The gap may extend to the covering means and be closed when the body parts are in the retracted position. The walls of the gap may be normal to the respective side or sides of the camera over which the
10 gap extends. The two body parts may make a flush fit over the region of the gap when the gap is closed in the retracted position of the body parts. The gap, or a portion thereof, may extend in a direction
15 parallel to the optical axis of the camera objective, and/or may extend in a direction perpendicular to the plane containing the optical axis of the camera objective and the direction of sliding movement, and be
20 adjacent to the covering means at the back of the camera.

- One of the body parts may include a hollow member which surrounds a part of the other body part, the gap being defined
25 between an edge or edges of the hollow member and a surface of the said other body part. Preferably, the said one or more camera components that are covered in the retracted position are mounted in one body
30 part and are covered in the retracted position by the hollow member, and consist of or include any one or more of the following components, namely, the camera objective, the viewfinder eyepiece, the
35 viewfinder objective.

- Advantageously, the camera is elongate in the direction of the sliding movement. Preferably, the camera is, at least when retracted, of substantially uniform and substantially rectangular section in a direction
40 normal to the plane defined by the optical axis of the camera objective and the direction of sliding movement, the depth of the camera in the said direction normal to the said plane being less than its dimensions
45 over the rectangular section.

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

- Figure 1 is a perspective view of the camera in a fully retracted position,
Figure 2 shows the camera of Figure 1 with an open back, and,
55 Figure 3 shows the camera of Figure 1 in an extended position.

- Referring to the accompanying drawings, a main camera body part 1 contains all the
60 essential components such as objective, viewfinder, shutter release 1a, a rotatable mounting 1b for flash cubes or a clip-on shoe, a chamber 1c for film spools or cartridges, a shutter and the like. Connected
65 to the part 1 is a second body part in the

form of a slider 2, which is preferably hollow and in the retracted position covers components in the part 1. The parts 1 and 2 are slidable relative to each other in direction 4 laterally with respect to the
70 optical axis of the camera objective, between the retracted position illustrated in the Figures 1 and 2 and the extended position illustrated in Figure 3 where the slider 2 projects beyond the end of the body part 1.
75 The extended position is the picture-taking position, and the camera is retracted when not in use. In its retracted position, the slider 2 acts as a cover for one end portion of the body part 1 and for parts of the
80 camera such as the viewfinder or objective. The slider 2 also acts as a film advance and/or shutter cocking means, film advance and/or shutter cocking being effected in response to the sliding movement of the
85 slider.

A gap 6 (Figure 3) is defined on the camera exterior by the first and second body parts in the region of the part of the camera that is held to the eye for picture-taking.
90 The gap 6 includes portions extending parallel to the optical axis of the camera objective (that is, at the top and bottom of the camera as seen in the drawings), and a portion extending perpendicular to the
95 plane containing the optical axis of the objective and the direction of sliding movement (that is, at the back of the camera extending from top to bottom). This gap 6, however, is bridged by covering means in
100 the form of the camera back 3. When the camera is held to the eye for picture-taking, the back 3 is interposed between the eye of the camera user and the gap to protect the camera user.

In Figures 1 and 2, the slider 2 is shown in the retracted position, in which the viewfinder (which is mounted in the first body part) is covered by an arm 2a of the slider 2.
110 The outer surfaces of the arm 2a in the closed position are co-planar with (that is, make a flush fit with) and abut the outer surfaces of the body part 1 (Figure 2) so that the arm 2a behaves like an outer extension of the part 1. It is of particular
115 importance that the surface 2b of the arm 2a lies in the plane of the edge 1d of the chamber 1c. This makes it possible for the camera back 3 to extend over the entire length of the camera including the surface
120 2b of the slider 2.

The camera back 3 is pivoted on hinges 3a mounted in the body part 1 and has a latch 3b co-operating with the body part 1.
125 Over the length of the part 1, the camera back 3 in its closed position engages by means of a rib 3c in a groove 1e in the part 1 to give a light-tight seal for the film chamber 1c. Over the length of the slider 2, however, the camera back 3 is so formed
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that a small space remains between the slider 2 at the surface 2b and the camera back 3, so that the slider 2 can move back and forth freely along the line of arrow 4 when the camera back 3 is closed.

To insert a film the camera back 3 is opened. For this operation, the slider 2 may be in its retracted or extended position. After inserting a film and closing the camera back, as shown in Figure 1, the slider 2 is moved in the direction of the arrow 4 into the position shown in Figure 3 to prepare the camera for picture-taking. In the extended position, a wall 1g of a viewfinder 7, which is only just visible in the drawings, and the objective are uncovered by the slider 2, and the viewfinder eyepiece is visible through a window 3d in the camera back 3. In the extended position of the slider 2, the surface 2c adjacent the part 1 remains behind the outer edge 3e of the camera back 3.

With the arrangement of the invention, a user can move the slider 2 back and forth as desired, and yet be in no danger of catching an eyelid in the gap 6 between the slider 2 and part 1, for example, when looking through the viewfinder and moving the slider 2, since the eye is always protected from the gap by the camera back 3.

The camera back 3 need not extend over the entire length of the camera but may only cover the gap. Further, the camera back 3 could be completely removable rather than hinged to the camera and could extend over parts of the upper side and/or lower side of the camera in the region of the gap to protect the user. On one of these sides an additional battery chamber lid, for example, a slide, could also cover the gap. Instead of a lid to cover the gap, it would also be possible to use an appropriately shaped housing flange.

WHAT WE CLAIM IS:

1. A camera comprising a first body part and a second body part, the parts being slidable relative to each other laterally with respect to the optical axis of the camera objective between a retracted position and an extended, picture-taking, position, one or more camera components being covered in the retracted position and uncovered in the extended position, and wherein a gap is defined by the first and second body parts on the camera exterior in the region of the part of the camera that is held to the eye for picture-taking, in such a way that the gap becomes narrower as the body parts are moved towards the retracted position, and wherein one of the body parts has covering means so disposed at the back of the camera that the covering means is interposed, in use, between the gap and the

camera user when the camera is held to the eye for picture-taking.

2. A camera as claimed in claim 1, wherein the covering means is movable to permit access to a compartment in the camera.

3. A camera as claimed in claim 2, wherein the compartment is a film chamber accessible from the back of the camera.

4. A camera as claimed in claim 3, wherein the covering means extends over substantially the whole length of the camera when the body parts are in the retracted position.

5. A camera as claimed in claim 4, wherein the covering means extends beyond the film chamber.

6. A camera as claimed in claim 4 or claim 5, wherein the covering means extends over substantially the whole area of the back of the camera when the parts are in the retracted position.

7. A camera as claimed in any one of claims 2 to 6, wherein the compartment is in one of the body parts and the edges of the compartment against which the covering means abuts are co-planar with one surface of the other body part and define at least part of the length of the gap therebetween, and the covering means extends over said one surface of the other body part.

8. A camera as claimed in any one of claims 2 to 7, wherein a viewfinder is mounted in that body part which has the covering means, the viewfinder being covered by the other body part in the retracted position, and the covering means has a viewing window therein in alignment with the viewfinder.

9. A camera as claimed in any one of claims 2 to 8, wherein the covering means is hinged to one of the body parts.

10. A camera as claimed in any one of claims 1 to 9, wherein the gap extends to the covering means and is closed when the body parts are in the retracted position.

11. A camera as claimed in claim 10, wherein the walls of the gap are normal to the respective side or sides of the camera over which the gap extends.

12. A camera as claimed in claim 11, wherein the two body parts make a flush fit over the region of the gap when the gap is closed in the retracted position of the body parts.

13. A camera as claimed in any one of claims 10 to 12, wherein the gap, or a portion thereof, extends in a direction parallel to the optical axis of the camera objective.

14. A camera as claimed in any one of claims 10 to 13, wherein the gap, or a portion thereof, extends in a direction perpendicular to the plane containing the optical axis of the camera objective and the

direction of sliding movement, and is adjacent to the covering means at the back of the camera.

15. A camera as claimed in any one of claims 1 to 14, wherein one of the body parts includes a hollow member which surrounds a part of the other body part, the gap being defined between an edge or edges of the hollow member and a surface of the said other body part.

16. A camera as claimed in claim 15, wherein the said one or more camera components that are covered in the retracted position are mounted in one body part and are covered in the retracted position by the hollow member, and consist of or include any one or more of the following components, namely, the camera objective, the viewfinder eyepiece, the viewfinder objective.

17. A camera as claimed in any one of claims 1 to 16, wherein the film transport means is arranged to be actuated in response to the sliding movement.

18. A camera as claimed in any one of

claims 1 to 17, wherein the camera is elongate in the direction of the sliding movement.

19. A camera as claimed in claim 18, wherein the camera is, at least when retracted, of substantially uniform and substantially rectangular section in a direction normal to the plane defined by the optical axis of the camera objective and the direction of sliding movement, the depth of the camera in the said direction normal to the said plane being less than its dimensions over the rectangular section.

20. A camera as claimed in any one of claims 1 to 19, wherein the camera is a still camera.

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

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