

PATENT SPECIFICATION

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(19)



(54) IMPROVEMENTS IN AND RELATING TO CAMERAS

(71) We, AGFA-GEVÆRT AKTIENGES-
 SELLSCHAFT, a body corporate organised
 according to the laws of the Federal Republic
 of Germany, of Leverkusen, Federal Republic
 of 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 invention relates to cameras.
 The invention provides a camera for use
 with film cassettes which are with or without
 markers depending upon the sensitivity of
 film in the respective cassette, comprising a
 light-sensitive element; a light-attenuating
 component; a control member carrying the
 light-attenuating component and being mova-
 ble between a first and a second position in
 one of which that component is interposed in
 the path of light impinging on the element and
 in the other of which that component is
 withdrawn from that path of light; means
 permanently urging the control member
 towards its first position; and means for
 detecting the presence or absence of a marker
 indicating the sensitivity of a film in a cassette
 inserted into the camera, including a sensi-
 tivity member movable according to the
 presence or absence of such a marker in a
 direction transverse to the direction of
 movement of the control member between one
 position in which a portion of the sensitivity
 member extends into the path of the control
 member and blocks movement of the control
 member from its second position to its first
 position, and another position in which the
 sensitivity member is withdrawn from the
 path of the control member so that the control
 member is not prevented by the sensitivity
 member from moving to its first position.

With the arrangement of the invention it is
 possible in a simple manner and with a low
 degree of expenditure for account to be taken
 of the sensitivity of the film in a manner in
 which stressing of the film cartridge by forces
 is kept low to achieve a plane position of the
 same. The camera of the invention has the
 advantage that it is possible for a control part,
 which is present anyway, and belongs to the

summing gear to be used to determine the
 position of a scanning lever. Not only can the
 flash diaphragm be influenced but also a
 neutral-density filter can be varied by this
 control part. Furthermore, there is the
 advantage that after the shutter setting and/or
 film transport lever has been set, the control
 part is disengaged by action of forces from the
 projection of the scanning lever. The dis-
 engagement is maintained when the projection
 of the scanning lever is not moved into the
 path of movement of the control member. In
 a simple manner, both in the set state and in
 the film-feed position of the shutter setting
 and/or film transport lever, a cartridge having
 a first film sensitivity marking may be re-
 placed by another cartridge having a second
 film sensitivity marking, without the need
 for scanning errors to be feared as a result.
 Owing to the fact that only a single scanning
 lever presses against the marking of the film
 cartridge the spring force of this scanning
 lever can be kept low, so that the plane
 position of the cartridge need not be adversely
 affected.

Advantageously, the control member is
 constructed as a toothed rack. Preferably, a
 double shank spring acts on the toothed rack
 and also on another toothed summing gear
 part, which is preferably a toothed wheel
 cooperating with a toothed diaphragm slider.
 This shank spring can prevent gear play in a
 simple manner. Further, there is the advan-
 tage that on account of one shank acting upon
 the toothed wheel, this shank of the spring
 need travel only a short spring path. This
 would not be so if the shank of the spring
 were to act on the diaphragm slider. In
 addition to the advantage of being balanced
 equally on both sides, the spring has the
 further advantage that it can serve as the
 spring drive for the control part.

A camera constructed in accordance with
 the invention will now be described, by way of
 example, with reference to the accompanying
 drawing, the single figure of which shows
 schematically a portion of the camera.

Referring to the accompanying drawing, a
 cartridge is indicated by the reference numeral

(a)

1. If there is a film of film sensitivity 27 DIN in the cartridge 1, then the cartridge 1 has a marking 2. If there is a film of film sensitivity 19 DIN in the cartridge 1, then the cartridge has no marking. A member 3 is provided for scanning the sensitivity of the film, and a spring 4 acting upon the scanning member 3 urges it to move towards the marking 2. A scanning projection 5 is provided on the scanning member 3.

A control member 6 has at one end a neutral-density filter, which, together with the control member 6 can be moved in front of a light-sensitive receiver 8, which automatically controls an exposure time control device or a diaphragm adjusting device. At its other end, the control member 6 has a latch-like extension 9, into the path of movement of which the scanning projection 5 of the scanning member 3 may be moved. One shank of a double shank spring 11 acts upon a pin 10 of the control member 6 and its other shank acts upon a member 13 connected to a toothed wheel 12. The toothed wheel 12 engages on one side a toothed portion 6a of the control member 6 and on the other side a diaphragm slider 14 constructed as a toothed rack, and which moves when the control member 6 moves.

The diaphragm slider 14 also engages a toothed control wheel 15 which has a cam 16. This cam 16 serves as a stop for a pin 17 of a diaphragm blade 19 lying under the influence of a spring 18. This diaphragm blade 19 is held in its initial position by a pawl 20 which can be pivoted outwards by way of a mechanical connection 21, when a flash gun 22 is connected to the camera, to release the diaphragm blade 19, the diaphragm setting being effected by the slider 14.

A T-shaped transfer member 23 has a projection 23a which lies against a cam 24 of a distance correcting member 25. A toothed rack 26 engaging the teeth of the distance corrector 25 serves to adjust the lens. A toothed wheel 27 is rotatably mounted on the T-shaped member 23 and engages both the control member 6 and the diaphragm slider 14. The member 23 is arranged to move only when the distance correcting member 24 and 25 is adjusted. A transport slider 28 has a projection 28a which presses against the end face of the control member 6.

The mode of operation is as follows:—

It is assumed that no flash gun has been plugged into the camera and that a cartridge 1 having a film of the film sensitivity 19 DIN is loaded in the camera. It is further assumed that the control member 6 is in the position shown. When the cartridge 1 without a marking 2 is inserted, the scanning member 3 moves into the position shown by the dot-dash line in the drawing. The projection 5 is moved into the path of movement of the extension 9 of the control member 6. When

the shutter is set or when the film is wound on, the transport slider 28 is moved in the direction of arrow A. When the setting movement is accomplished, the transport slider 28 moves into its operative position for photographing, under the action of a spring 29, in the opposite direction to arrow A.

The control member 6 remains in the position shown because its extension 9 is held by the projection 5 of the scanning member 3. The neutral-density filter 7 is consequently not moved in front of the photoresistor 8.

If a cartridge 1 having a marking 2 (film sensitivity 27 DIN) is now inserted in the camera, then the scanning member 3 is moved against the force of the spring 4 into the position shown in full lines. When, after the film has been wound on, the transport slider 28 moves under the action of the spring 29 in the opposite direction to arrow A into its rest position, the control member 6 follows it under the action of the shank spring 11 to a position shown by dot-dash lines. In this position the neutral-density filter 7 is moved in front of the photoresistor 8.

By means of the distance corrector 25, the distance correcting movement is transferred by way of the member 23 and the toothed wheel 27 to the diaphragm slider 14 and to the control part 15. If a flash gun 22 is now placed on the camera, which is not shown, then, in a manner which is not shown, the pawl 20 is pivoted by way of the mechanical connection 21 out of the range of the diaphragm blade 19, so that the latter pivots in an anti-clockwise direction under the action of the spring 18 until its pin 17 comes to rest against the cam 16.

The shank spring 11 ensures that the control member 6 as well as the diaphragm slider 14 co-operate with movement free from play.

WHAT WE CLAIM IS:

1. A camera for use with film cassettes which are with or without markers depending upon the sensitivity of film in the respective cassette, comprising a light-sensitive element; a light-attenuating component; a control member carrying the light-attenuating component and being movable between a first and a second position in one of which that component is interposed in the path of light impinging on the element and in the other of which that component is withdrawn from that path of light; means permanently urging the control member towards its first position; and means for detecting the presence or absence of a marker indicating the sensitivity of a film in a cassette inserted into the camera, including a sensitivity member movable according to the presence or absence of such a marker in a direction transverse to the direction of movement of the control member between one position in

1. If there is a film of film sensitivity 27 DIN in the cartridge 1, then the cartridge 1 has a marking 2. If there is a film of film sensitivity 19 DIN in the cartridge 1, then the cartridge has no marking. A member 3 is provided for scanning the sensitivity of the film, and a spring 4 acting upon the scanning member 3 urges it to move towards the marking 2. A scanning projection 5 is provided on the scanning member 3.

A control member 6 has at one end a neutral-density filter, which, together with the control member 6 can be moved in front of a light-sensitive receiver 8, which automatically controls an exposure time control device or a diaphragm adjusting device. At its other end, the control member 6 has a latch-like extension 9, into the path of movement of which the scanning projection 5 of the scanning member 3 may be moved. One shank of a double shank spring 11 acts upon a pin 10 of the control member 6 and its other shank acts upon a member 13 connected to a toothed wheel 12. The toothed wheel 12 engages on one side a toothed portion 6a of the control member 6 and on the other side a diaphragm slider 14 constructed as a toothed rack, and which moves when the control member 6 moves.

The diaphragm slider 14 also engages a toothed control wheel 15 which has a cam 16. This cam 16 serves as a stop for a pin 17 of a diaphragm blade 19 lying under the influence of a spring 18. This diaphragm blade 19 is held in its initial position by a pawl 20 which can be pivoted outwards by way of a mechanical connection 21, when a flash gun 22 is connected to the camera, to release the diaphragm blade 19, the diaphragm setting being effected by the slider 14.

A T-shaped transfer member 23 has a projection 23a which lies against a cam 24 of a distance correcting member 25. A toothed rack 26 engaging the teeth of the distance corrector 25 serves to adjust the lens. A toothed wheel 27 is rotatably mounted on the T-shaped member 23 and engages both the control member 6 and the diaphragm slider 14. The member 23 is arranged to move only when the distance correcting member 24 and 25 is adjusted. A transport slider 28 has a projection 28a which presses against the end face of the control member 6.

The mode of operation is as follows:—

It is assumed that no flash gun has been plugged into the camera and that a cartridge 1 having a film of the film sensitivity 19 DIN is loaded in the camera. It is further assumed that the control member 6 is in the position shown. When the cartridge 1 without a marking 2 is inserted, the scanning member 3 moves into the position shown by the dot-dash line in the drawing. The projection 5 is moved into the path of movement of the extension 9 of the control member 6. When

the shutter is set or when the film is wound on, the transport slider 28 is moved in the direction of arrow A. When the setting movement is accomplished, the transport slider 28 moves into its operative position for photographing, under the action of a spring 29, in the opposite direction to arrow A.

The control member 6 remains in the position shown because its extension 9 is held by the projection 5 of the scanning member 3. The neutral-density filter 7 is consequently not moved in front of the photoresistor 8.

If a cartridge 1 having a marking 2 (film sensitivity 27 DIN) is now inserted in the camera, then the scanning member 3 is moved against the force of the spring 4 into the position shown in full lines. When, after the film has been wound on, the transport slider 28 moves under the action of the spring 29 in the opposite direction to arrow A into its rest position, the control member 6 follows it under the action of the shank spring 11 to a position shown by dot-dash lines. In this position the neutral-density filter 7 is moved in front of the photoresistor 8.

By means of the distance corrector 25, the distance correcting movement is transferred by way of the member 23 and the toothed wheel 27 to the diaphragm slider 14 and to the control part 15. If a flash gun 22 is now placed on the camera, which is not shown, then, in a manner which is not shown, the pawl 20 is pivoted by way of the mechanical connection 21 out of the range of the diaphragm blade 19, so that the latter pivots in an anti-clockwise direction under the action of the spring 18 until its pin 17 comes to rest against the cam 16.

The shank spring 11 ensures that the control member 6 as well as the diaphragm slider 14 co-operate with movement free from play.

WHAT WE CLAIM IS:

1. A camera for use with film cassettes which are with or without markers depending upon the sensitivity of film in the respective cassette, comprising a light-sensitive element; a light-attenuating component; a control member carrying the light-attenuating component and being movable between a first and a second position in one of which that component is interposed in the path of light impinging on the element and in the other of which that component is withdrawn from that path of light; means permanently urging the control member towards its first position; and means for detecting the presence or absence of a marker indicating the sensitivity of a film in a cassette inserted into the camera, including a sensitivity member movable according to the presence or absence of such a marker in a direction transverse to the direction of movement of the control member between one position in



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- which a portion of the sensitivity member extends into the path of the control member and blocks movement of the control member from its second position to its first position, and another position in which the sensitivity member is withdrawn from the path of the control member so that the control member is not prevented by the sensitivity member from moving to its first position.
- 5 2. A camera as claimed in claim 1, wherein the control member is so operatively connected to a shutter setting and/or film transport device that if the device is operated while the control member is in its first position the control member is caused to move to its second position.
- 10 3. A camera as claimed in claim 1 or claim 2, wherein the sensitivity member comprises a lever having a projection which is movable into and out of the path of movement of the control member, the said path of movement being normal to the direction of movement of the sensitivity member.
- 15 4. A camera as claimed in any one of claims 1 to 3, wherein the control member is designed as a toothed rack.
- 25 5. A camera as claimed in claim 4, wherein a double shank spring is arranged to act on the toothed rack and on another toothed part of a summing-gear of which the toothed rack is a part.
- 30 6. A camera as claimed in claim 5, wherein the other summing-gear part is a toothed wheel arranged to co-operate with a toothed diaphragm slider.
- 35 7. A camera substantially as hereinbefore described with reference to, and as shown in, the accompanying drawing.
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