

PATENT SPECIFICATION

(11)

1 401 483

1 401 483

- (21) Application No. 52326/72 (22) Filed 13 Nov. 1972
 (31) Convention Application No. 7 142 722 (32) Filed 12 Nov. 1971 in
 (33) Germany (DT)
 (44) Complete Specification published 30 July 1975
 (51) INT. CL.² G03B 1/08
 (52) Index at acceptance
 G2A 401 403 411 431 432 625 632 MC
 (72) Inventors ERNST LIESER
 HORST SIMON
 WILLI WEIDENBACH



10

(54) FILM WINDING MECHANISM

(71) We, EASTMAN KODAK COMPANY, a Company organized under the Laws of the State of New Jersey, United States of America of 343 State Street, Rochester, New York 14650, United States of America 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 a photographic camera comprising a film transport mechanism and a means for preventing reverse movement.

The bending forces existing in a wound film tend to move the film after film transport has been effected. This undesired movement of the film occurs in particular when the camera is shaken (for instance during a motor drive). When such a film movement takes place, the portion of the film which is to be exposed is displaced with respect to the film window of the camera, and if, for instance, film received in a cartridge is used, the portion of the film which has already been wound on will tend to reduce the size of the following image. When long exposures are made, the danger, moreover, exists of the film moving during the exposure operation so that the picture will be spoilt.

It is an object of the present invention to provide a film winding mechanism having a simple means of reducing the aforesaid disadvantage.

According to the present invention, there is provided a film transport mechanism for a camera, comprising a member operable in one direction to rotate a film take-up spool for effecting film advance and a pawl engageable with the member for preventing unlimited reverse movement thereof by forces in the tensioned film acting upon the take-up spool, which pawl is displaceable from a position of first engagement by a small amount to permit a predetermined slacken-

[Price 33p]

ing of film tension by said forces in the tensioned film whereby the pawl is displaced to a position of second engagement in which it contacts an abutment thereby preventing further reverse movement of the member, the pawl being returned towards its position of first engagement when another film transport operation commences.

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

Fig. 1 shows a film transport mechanism at the beginning of a film transport operation; and

Fig. 2 shows the mechanism at the end of the film transport operation.

A film transport mechanism in accordance with the present invention comprises an operating means 1 (see Fig. 1) arranged to be moved in the direction of the arrow "A". A film 8 is thereby transported in the direction of the arrow "A" via a rack 2, a toothed segment 4, and gear wheels 5 and 7. During the film transport, the film 8 is tightly stretched. At the end of the film advance movement, the film transport is stopped by known means (not shown). The operating means 1, the rack 2, and the toothed segment 4 return under the action of a spring 3. A coupling is interconnected between the toothed segment 4 and the gear wheel 5, the coupling being inoperative i.e. disengaged during the return movement. Moreover, a pawl 6 prevents an unlimited movement of the gear wheels 5 and 7 in a direction opposite that of film transport.

As soon as a take-up spool 9a of a cartridge 9 containing the film 8 is no longer driven in the film transport direction (Fig. 2), bending forces of the wound portion of the film 8 referred to at the beginning are released which return the take-up spool 9a (in the direction of the arrow "B") as well as the gear wheels 7, 5. The pawl 6 is thus moved from a position of first engagement

in the direction of the arrow "C", until it abuts on the housing 10. The film 8 on the take-up spool 9a can thus slacken, whereupon the mechanism is ready for an exposure operation.

When the operating means 1 is once again moved in the direction of the arrow "A" for the purpose of film transport, the pawl 6 is, due to its resilience and/or frictional contact, taken along by the gear wheel 5 contrary to the direction of the arrow "C", from its position of second engagement until it assumes the position according to Fig. 1. Further operation takes place in the order described before.

The pawl 6 preferably has the form of a leaf spring one end 6a of which is inserted in a slit of the housing 10. The other end is provided with two spring legs 6b, 6c and is displaceably mounted between two projections 10a, 10b of the housing. The leading ends of the spring legs 6b, 6c are staggered relative to each other in order closely to limit the reverse movement. The pawl 6 is held in the location shown by a cover portion of the housing (not shown).

The pawl 6 described above gives rise to a simple and cost-saving manufacture and assembly. Moreover, it allows for a reverse movement of the take-up spool 9a and thus for a slackening of the film 8 in the exposure position (Fig. 2) so that undesired movement of the film before or during exposure will be avoided.

35 WHAT WE CLAIM IS —

1. A film transport mechanism for a

camera, comprising a member operable in one direction to rotate a film take-up spool for effecting film advance and a pawl engageable with the member for preventing unlimited reverse movement thereof by forces in the tensioned film acting upon the take-up spool, which pawl is displaceable from a position of first engagement by a small amount to permit a predetermined slackening of film tension by said forces in the tensioned film whereby the pawl is displaced to a position of second engagement in which it contacts an abutment thereby preventing further reverse movement of the member, the pawl being returned towards its position of first engagement when another film transport operation commences.

2. A mechanism according to Claim 1, wherein the member comprises a ratchet or gear wheel and the pawl has the form of an angular leaf spring, one end of which is held in a stationary position, whilst the other end which co-operates with the ratchet or gear wheel is displaceable.

3. A mechanism according to Claim 2, characterized in that the said other end of the pawl has two spring legs whose leading ends are staggered relative to one another in order closely to limit the extent of reverse movement of the film take-up spool.

4. A film transport mechanism, for a photographic camera, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

L. A. TRANGMAR, B.Sc., C.P.A.
Agent for the Applicants.

in the direction of the arrow "C", until it abuts on the housing 10. The film 8 on the take-up spool 9a can thus slacken, whereupon the mechanism is ready for an exposure operation.

When the operating means 1 is once again moved in the direction of the arrow "A" for the purpose of film transport, the pawl 6 is, due to its resilience and/or frictional contact, taken along by the gear wheel 5 contrary to the direction of the arrow "C", from its position of second engagement until it assumes the position according to Fig. 1. Further operation takes place in the order described before.

The pawl 6 preferably has the form of a leaf spring one end 6a of which is inserted in a slit of the housing 10. The other end is provided with two spring legs 6b, 6c and is displaceably mounted between two projections 10a, 10b of the housing. The leading ends of the spring legs 6b, 6c are staggered relative to each other in order closely to limit the reverse movement. The pawl 6 is held in the location shown by a cover portion of the housing (not shown).

The pawl 6 described above gives rise to a simple and cost-saving manufacture and assembly. Moreover, it allows for a reverse movement of the take-up spool 9a and thus for a slackening of the film 8 in the exposure position (Fig. 2) so that undesired movement of the film before or during exposure will be avoided.

WHAT WE CLAIM IS —

1. A film transport mechanism for a

camera, comprising a member operable in one direction to rotate a film take-up spool for effecting film advance and a pawl engageable with the member for preventing unlimited reverse movement thereof by forces in the tensioned film acting upon the take-up spool, which pawl is displaceable from a position of first engagement by a small amount to permit a predetermined slackening of film tension by said forces in the tensioned film whereby the pawl is displaced to a position of second engagement in which it contacts an abutment thereby preventing further reverse movement of the member, the pawl being returned towards its position of first engagement when another film transport operation commences.

2. A mechanism according to Claim 1, wherein the member comprises a ratchet or gear wheel and the pawl has the form of an angular leaf spring, one end of which is held in a stationary position, whilst the other end which co-operates with the ratchet or gear wheel is displaceable.

3. A mechanism according to Claim 2, characterized in that the said other end of the pawl has two spring legs whose leading ends are staggered relative to one another in order closely to limit the extent of reverse movement of the film take-up spool.

4. A film transport mechanism, for a photographic camera, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawing.

L. A. TRANGMAR, B.Sc., C.P.A.
Agent for the Applicants.



* C L M S *