

PATENT SPECIFICATION (11)

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(54) IMPROVEMENTS IN AND RELATING TO CAMERAS

(71) We, AGFA-GEVAERT AKTIENGESELLSCHAFT, 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 a camera for use with a roll film and including film transport drive means, a differential mechanism for transmitting force from the film transport drive means to two outputs one of which comprises a film spool drive means, means for metering the amount by which a film has been advanced, a locking member for the other output and an overload coupling arranged between the input of the differential mechanism and the outputs, the arrangement being such that during film transport the locking member is arranged in engagement with the other output and, when the film has been advanced by a predetermined amount, the film metering means is arranged to cause the locking member to disengage other output to lock the one output.

An object of the invention is to create a further development of the camera described and claimed in Application No. 43107/73 (Serial No. 1412379) in which the overload coupling is particularly simple.

The present invention provides a camera of the type described above, in which, if the one output is prevented from operating when the locking member is engaged with the other output the locking member is arranged, when the force on the other output by the input exceeds a predetermined value, to be disengaged from the other output to allow operation of the input.

Advantageously, the second output comprises a ratchet wheel and the locking means comprises a pawl, the pawl being arranged to slide over the ratchet wheel if the torque on the ratchet wheel exceeds the predetermined value. Preferably, the angles of the engaging edges of the pawl and the ratchet teeth are such that, when the torque

on the ratchet wheel exceeds the predetermined value, the pawl is urged out of engagement with the co-operating tooth.

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 sectional view of part of the camera, corresponding to the drawing accompanying United Kingdom Patent Application No. 43107/73. (Serial No. 1412379)

Fig. 2 is a plan view of the camera shown in Fig. 1.

Referring to the accompanying drawings, a film transport handle 110 carries spindles 118 on each of which is supported a sun gear 119. The transport handle 110 may project out of the camera housing at one corner. Each gearwheel 119 engages both with a gearwheel 116a of an assembly 116 and 117, with a locking toothed section 117a of which a locking member 125 can engage, and with an internal toothed portion 122a of a gearwheel 122, which co-operates with a spool drive member 126. The locking member 125 is in turn so arranged that it locks the gear 117 when a feeler co-operating with film perforations has not engaged a perforation. When the feeler has engaged a perforation, the locking member 125 releases the gear 117. The locking member 125 is thus controlled by means of a known feeler, and for each exposure on the film a perforation is provided which the feeler engages to control the locking member and from which the feeler is disengaged during or after exposure. The film transport, is not, therefore terminated by blocking of the film transport handle 110 but by the fact that the assembly 116, 117 is released and the gearwheel 122 comes to rest under the action of friction and the pull of the film.

As shown in Fig. 1, the gearwheels 116 and 117 are rigidly coupled by a squared end 116c. This arrangement is suitable and reliable in operation as long as it is ensured that the film cannot be arrested by any influence before the feeler has engaged a perforation.

If, for example, an additional locking device which prevents the film from being torn out of a film cassette at its end causes the film to be arrested at the end before the feeler has engaged a perforation, both outputs, 116 and 117 on the one hand and 122 on the other hand, are locked. If the handle 110 is nevertheless, then actuated further with full force, it may lead to considerable damage to the mechanism, or to the film being torn from the cassette, depending on which gives way first. This disadvantage which is avoided by the arrangement described in United Kingdom Patent Application No. 43107/73 (Serial No. 1412379), is intended to be eliminated in an even simpler manner by means of the present improvement to the subject of the Main Patent.

For this purpose, the gearwheel 117a and a tooth 125a of the lever 125, which is arranged to be brought into engagement therewith, are so constructed that when they are engaged they form a ratchet mechanism. Ratchet mechanisms of this type and the calculation of the inclination of their angles of engagement are known *per se* in gearing technology, see, for example, Richter and Voss, Bauelemente der Feinmechanik (Components in Precision Mechanics). The slopes of the teeth 117a and 125a are such that at the end of the film when the film transport is locked before completion of the advance of a whole frame that is to say, when the lever 125 is engaged with the gearwheel 117a, the torque acting on the gearwheel 117a by the film transport handle 110, while the spool drive 126 is locked, is sufficient to raise the tooth 125a so that rotation of the gearwheel 117a is possible. Thus, due to the rotation of the gearwheel 117a when a predetermined driving force is exceeded, even if the lever 125 is in the locked position, damage to the mechanism is avoided.

WHAT WE CLAIM IS:—

1. A camera for use with roll film and

including film transport drive means, a differential mechanism for transmitting force from the film transport drive means to two outputs one of which comprises a film spool drive means, means for metering the amount by which a film has been advanced, a locking member for the other output and an overload coupling arranged between the input of the differential mechanisms and the outputs, the arrangement being such that during film transport the locking member is arranged in engagement with the other output and, when the film has been advanced by a predetermined amount, the film metering means is arranged to cause the locking member to disengage other output to lock the one output and if the one output is prevented from operating when the locking member is engaged with the other output the locking member is arranged, when the force on the other output by the input exceeds a predetermined value, to be disengaged from the other output to allow operation of the input.

2. A camera as claimed in claim 1, wherein the second output comprises a ratchet wheel and the locking member comprises a pawl, the pawl being arranged to slide over the ratchet wheel only if the torque on the ratchet wheel exceeds the predetermined value.

3. A camera as claimed in claim 2, wherein the angles of the engaging edges of the pawl and the ratchet teeth are such that, when the torque on the ratchet wheel exceeds the predetermined value, the pawl is urged out of engagement with the co-operating tooth.

4. A camera having a film transport mechanism substantially as hereinbefore described, with reference to, and as shown in, the accompanying drawings.

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