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(54) CINEMATOGRAPHIC CAMERA

(71) We, BOLEX INTERNATIONAL SA, of 18 Avenue des Alpes, CH-1450 Ste-Croix, Switzerland, a Swiss Company, 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 cinematographic camera having a compartment for receiving a sound film cartridge and having a sound recording and filming apparatus operable by a common release button.

Such cameras are already known. Due to the greater thickness of a film having a magnetic sound track, the cartridge of a sound-film is larger than the cartridge of silent-film. In principle, it is possible to insert a smaller silent-film cartridge into a compartment designed for the larger sound-film cartridge. It is a disadvantage, however, that the sound recording apparatus normally operated by the same release button and, of course, only necessary for recording on sound-film, is operated superfluously when a silent-film cartridge is used. Thus the sensitive sound recording apparatus is subjected to unnecessary wear. Particularly sensitive to wear is a pinch roller which is normally provided to co-operate with a capstan to drive the film past the sound recording head.

According to the present invention, there is provided a cinematographic camera having a compartment capable of receiving cartridges of different type for recording with and without an accompanying sound track, respectively, and having filming apparatus operable by a release button and sound recording apparatus selectively coupled to the said release button under the control of a sensing means for detecting the type of cartridge present in the compartment.

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

Figure 1A shows a silent-film cartridge,

Figure 1B shows a sound-film cartridge,

Figure 2 shows a cine-camera with sensing means for sensing the type of cartridge used, and

Figure 3 shows details of the camera in Figure 2.

A cartridge 1 (Figure 1B) containing a cinematographic film 9 additionally adapted for sound recording and provided, for example, with a magnetic sound track, is longer than a silent-film cartridge 2 (Figure 1A) by an amount "x". When inserted into a camera 30 (Figure 2) the cartridge 1 will therefore extend over a larger distance within the compartment 40 than the carriage 2. For holding the silent-film cartridge 2 within the compartment 40 a bar 26 is provided. Within the compartment 40 there are arranged a capstan 5, a pinch roller 6 and a magnetic head 27 forming part of the sound recording apparatus and a claw tooth 41.

A sensing lever 3 (Figure 3) extends into the compartment and is pivotable about a fixed axis 4 taking either the position drawn in heavy lines or the dash-dotted position under the action of a spring, according to the type of cartridge inserted.

From Figure 3 can be seen how the pinch roller 6 cooperating with the capstan 5 is carried by bracket 7, which is pivotable about a fixed axis 8. The bracket 7 can adopt one of two different positions. In the position of the bracket 7 shown in heavy lines in Figure 3, the pinch roller 6 urges the sound-film 9 against the capstan 5, whereas in the dash-dotted position of the support 7 the pinch roller 6 is disengaged from the film 9.

A release mechanism generally designated 10 comprises a pushbutton 11 arranged at one end of a release slider 12, the other end of which carries a pin 13 for operating an electrical release switch 14. The release slider 12 further has an arm 15, the function of which will be described below. A return spring 16 urges the release slider 12 in a direction to stop filming.

A second slider 17 supports a catch 18 pivotable about an axis 19. The catch 18 can adopt either of two different positions shown in Figure 3 in heavy and in dash-dotted lines, respectively. A spring 20 biases the catch 18 in the direction towards the dash-dotted position. On the right end of the slider 17

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(as viewed in Figure 3) a toggle spring 21 is fixed, the other end of which is connected to the bracket 7 carrying the pinch roller.

If a cartridge 1 with a sound track is inserted into the compartment 40 of the camera 30, the sensing lever 3 pivots about its axis 4 and adopts the position shown in heavy lines. During this pivoting motion a lower arm 22 of the sensing lever 3 strikes against the catch 18 pivoting it counter-clockwise (as viewed) about its axis 19. When the user of the camera 30 now presses the release button 11, the release slider 12 moves in the direction of the arrow 23 against the action of the spring 16. The leading edge of the arm 15 on the release slider 12 abuts the catch 18 mounted on the slider 17, so that the slider 17 moves with the slider 3. Thus the pinch roller 6 is made to urge the film 9 against the capstan 5 under the force of the toggle spring 21.

If, however, a silent-film cartridge 2 is inserted into the compartment 40 of the cine-film camera 30 the sensing lever 3 remains in the dash-dotted position under the influence of a spring which is not shown. The catch 18 thus remains in its dash-dotted position because of the action of the spring 20, in which position the catch 18 lies outside the path of the arm 15. Since the slider 17 is biased by a spring 24 in the direction of the arrow 25 (Figure 3), it remains in its left position (as viewed in Figure 3) so that the bracket 7 adopts its dash-dotted position because of the toggle spring 21.

Although the user of the camera 30 operates the release button 11, the arm 15 runs past the catch 18, so that in this case the release slider 12 and the second slider 17 are not coupled to one another and the pinch roller 6 is not urged against the capstan 5. In this way unnecessary wear and deformation of the pinch roller 6 during taking of silent-films are avoided and at the same time the force necessary for pressing the

release button 11 is reduced when silent-film cartridges 2 are used.

WHAT WE CLAIM IS:—

1. A cinematographic camera having a compartment capable of receiving cartridges of different type for recording with and without an accompanying sound track, respectively, and having filming apparatus operable by a release button and sound recording apparatus selectively coupled to the said release button under the control of a sensing means for detecting the type of cartridge present in the compartment.

2. A camera as claimed in claim 1, in which the sound recording apparatus includes a capstan and a pinch roller for driving the film past a sound recording head and in which the pinch roller is urged in the direction of the capstan by operation of the release button only when a sound-film cartridge is present in the compartment.

3. A camera as claimed in claim 2, in which the pinch roller is movable towards and away from the capstan by a toggle spring further secured to a movable member carrying a catch controllable by the sensing means, to couple the movable member for movement with the release button when a sound-film is present in the compartment.

4. A camera as claimed in claim 3, in which said movable member is a slider.

5. A camera as claimed in claim 4, in which the catch is pivotably secured to the slider and is movable by the sensing means into and out of the path of a further slider coupled to the release button.

6. A cinematographic camera substantially as herein described with reference to and as illustrated in Figures 2 and 3 of the accompanying drawings.

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