

PATENT SPECIFICATION

1,034,901

DRAWINGS ATTACHED.

Date of Application and filing Complete Specification:
Jan. 2, 1963. No. 198/63.

Application made in United States of America (No. 163,843) on
Jan. 2, 1962.

Complete Specification Published: July 6, 1966.

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Index at Acceptance:—G2 A(2C8, 12A1, 13F4).

Int. Cl.:—G 03 b.

COMPLETE SPECIFICATION.

Film Magazine and Cameras for Use Therewith.

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 4, New York, United States of America (Assignees of HUBERT NERWIN), 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 photographic still cameras and roll film magazines for use therein.

An object of the present invention is the provision of a film magazine having a detectable coded indication of the type of film in the magazine. Other objects of the present invention are the provision of a method of coding a magazine and a camera arranged to receive a film magazine so coded.

According to the present invention, there is provided a photographic roll film magazine having a film take-up and a film supply chamber, an intermediate member connecting the chambers and comprising a front and a rear wall which define a film passageway therebetween, an exposure aperture in the front wall of the intermediate member and tactile means on the intermediate member indicative of the sensitivity of a film contained or to be contained in the magazine.

The invention also provides a method of coding a photographic roll film magazine so as to provide tactile means indicative of the sensitivity of a film contained or to be contained therein which comprises the step of removing material from the magazine at a preselectable location thereof to establish a tactile surface discontinuity.

Further, within the scope of the invention is a photographic roll film camera having spaced recesses arranged to receive film supply and take-up chambers of a roll film

magazine, a seat, between the recesses and surrounding an optical axis of the camera, for an intermediate member connecting the film supply and take-up chambers of the magazine and sensing means for sensing a tactile indication of film sensitivity located on the intermediate member of the magazine, the sensing means being arranged to adjust an exposure regulator in accordance with the sensed indication.

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

Figure 1 is an exploded perspective view of a loaded film magazine according to a preferred embodiment of the invention:

Figure 2 is a broken plan view of the roll film and backing paper used in the magazine, as seen from the film side:

Figure 3 is a rear view of the film magazine:

Figure 4 is a sectional view of an empty magazine taken along the line IV—IV of Figure 3:

Figure 5 is a sectional view taken along the line V—V of Figure 3:

Figure 6 is a fragmentary, part-sectional front view of the empty film magazine:

Figure 7 is a sectional view taken along the line VII—VII of Figure 6:

Figure 8 is an enlarged portion of the magazine shown in Figure 4 illustrating means employed to support and locate one edge of the film and backing paper in an exposure plane in the magazine:

Figure 9 is an enlarged portion of the magazine shown in Figure 5 illustrating light sealing means employed in a film passageway of a film supply chamber of the magazine:

Figure 10 is a perspective view of a camera according to the present invention showing a magazine located for insertion into the camera:

Figure 11 is a perspective front view of the

[Price 4s. 6d.]

magazine showing one embodiment of magazine coding means:

Figure 12 is a top view of a magazine showing an alternative embodiment of magazine coding means:

Figure 13 is a top view of a magazine showing a further embodiment of magazine coding means:

Figure 14 is a perspective view of a camera mechanism for adjusting a lens diaphragm of the camera in response to the coding means on a magazine installed in the camera:

Figure 15 is a perspective view of a camera embodying the mechanism shown in Figure 14:

Figure 16 is a perspective view of a camera in accordance with a second embodiment of the present invention, with portions of the camera housing broken away to show a mechanism for adjusting an exposure indicating dial in response to the coding means on a magazine installed in the camera:

Figure 17 is a front view of the camera shown in Figure 16:

Figure 18 is a perspective view of a third embodiment, in accordance with the present invention, of a camera mechanism for adjusting a diaphragm to one of three positions in response to the coding means on a film magazine installed in the camera.

The Film Magazine

General Description:

Referring to Figures 1 to 11, and more particularly Figures 1 and 2, a loaded film magazine 51 of a preferred form of the present invention comprises a moulded plastics magazine body 52, a moulded plastics magazine cover 53, a moulded plastics spool 54, a strip of light protective paper 55 attached to take-up spool 54 by an adhesive paster 56, a length of film 57 attached to the protective paper 55 by a second adhesive paster 58 and a film identification and exposure guide 59 attached to the magazine cover 53. In the assembled magazine, the film is initially wound upon itself to form a core-less film supply roll 61 which is housed in a film supply chamber 52 formed by the co-operation of the magazine body and the magazine back, as illustrated in cross-section in Figure 5, with the backing paper extending across a magazine exposure opening 63 and attached to the spool 54 located in a film spool chamber 64. With the magazine components so disposed, the cover member 53 is cemented or otherwise permanently joined to the magazine body 52. The magazine is not intended to be reloaded: an exposed roll of film is removed therefrom for processing by breaking the magazine open.

Light Sealing Means:

In order to prevent light from entering the magazine along the mating edges of the body

and the cover member, these edges are provided at all points with closely fitting mating surfaces normal to the adjacent outer surface of the magazine, as shown, for example, at 65 and 66 of Figure 4 and with contiguous mating surfaces as shown, for example, at 67 and 68 at right-angles thereto effectively to block the entry of light through the joint. As is most clearly illustrated in Figures 1 and 7, the light sealing means, employed at the ends of the film take-up chamber to prevent light leakage past spool flanges 69, comprise annular ribs 71 and 72 on the magazine body 52 and the cover 53, respectively, which engage circumferential grooves 73 in each of the spool flanges 69 rotatably to support and locate the film spool. The junctions of the ribs are protected against light leakage by overlapping mating surfaces as previously described.

Magazine Film Gate and Film Passageways:

The portion of film to be exposed is accurately supported in a flat plane behind the magazine exposure opening by means integral with the moulded magazine components, and the magazine itself is accurately located in the camera, as described later, to ensure that the film in the exposure opening lies in the focal plane of the camera lens system. To support the film in a flat plane, the magazine cover is provided with a flat rectangular surface 75 surrounded by a shallow recess 76 as shown in plan view in Figure 6, and, in cross section, in Figures 4, 5, 8 and 9. The film and backing paper are maintained in flat supported engagement with the surface 75 by the engagement of the film with a rectangular rearwardly facing surface 77 of a magazine wall 78 surrounding the exposure opening opposite recess 76 and spaced forwardly of surface 75 by a distance closely approximating the combined thickness of the film and paper. Thus, as shown in enlarged views in Figures 8 and 9, the film and paper are maintained in flat relation against surface 75 due to their natural resistance to being flexed simultaneously in transverse directions. In case the combined thickness of the film and paper is slightly greater than the distance between the planes of surfaces 75 and 77, the film and paper are bowed slightly into recess 76 without materially effecting the flatness of the film in the exposure plane or causing the film to bind as it is wound across the opening. Along the top edge of the exposure opening, the magazine wall 78 is provided with a notch 79 to accommodate the end of a metering member, as shown at 80, in Figure 10, which is adapted to extend through the film and into a recess 81 in the magazine cover. Since the film extends beyond the top of the notch, however, the continuous surface 77 is narrowed but not completely interrupted thereby.

Figure 9 is a cross section, to an enlarged scale, of the film passageway into the film supply chamber, the same construction, also being employed in the passageway into the spool chamber as shown in Figure 5. As previously explained, the film is maintained in contact with surface 77 of wall 78 by virtue of the resiliency of the film and paper and the correspondence between the combined thickness of the film and paper and the spacing of surfaces 75 and 77. The intimate contact thus obtained between the film and surface 77 eliminates the need for additional light sealing elements such as plush or felt, and thereby the possibility of contaminating the film with lint or foreign matter originating in the light seal. Since recess 76 is wider than opposing wall 78, the passageway may freely accommodate the adhesive paster 58 which must pass therethrough during the initial film winding operation.

After the film and paper have been completely wound onto the take-up spool, the passageway is obviously no longer completely light tight. At this stage of the winding operation, however, the trailing end of the backing paper has been wound upon the spool over the exposed film and substantially reduces the danger of the film being fogged by any slight amount of light entering through the passageway of the spool chamber. As a means of further protecting the fully exposed film in the spool chamber, cameras adapted to accommodate such magazines may be provided with film metering mechanisms, as described in our copending Application No. 29853/62 (Serial 1,024,721) which limit the final winding operation of the camera to cause the end of the backing strip to remain in the passageway of the spool chamber. While the presence of the paper alone in the passageway does not provide quite as effective a light seal as does paper and film together, this arrangement, in conjunction with the backing paper wound over the exposed film on the spool, substantially eliminates the danger of fogging the film.

Film Guiding Means:

As the film and paper are wound from the supply chamber into the spool chamber, the lateral freedom of the strips in the area of the film gate is limited by edge guides 82 and 83, moulded integrally with the magazine body 52 as most clearly illustrated in Figures 1, 4 and 8. These guide members accurately centre the film and paper in the film gate and guide it on to the take-up spool while providing sufficient lateral freedom to allow for slight variations in the width of the strips. As an additional means of preventing the film from riding over the flanges 69 of the spool 54 and causing jamming or damage to the film, the semi-cylindrical internal surface 84 of the spool chamber located between the spool

flanges is of smaller radius than the flanges as shown in Figure 7. At the point where the film strip enters the spool chamber, similar means are employed on the magazine cover, as shown at 85 of Figures 5 and 7, to guide the film between the spool flanges.

Magazine Locating Means:

As shown in Figure 10, a camera of the present invention, adapted to accommodate the magazine constructed according to the present invention, comprises a main housing 86 provided with a central box-like member 87 located between two chambers 88 and 89 adapted respectively freely to accommodate the film supply and spool chamber portions of the magazine. A continuous rearwardly projecting rib 91 is provided along the rearward portion of member 87, and is adapted to be received by a corresponding continuous channel 92 surrounding the exposure opening of the magazine as illustrated in Figures 6, 8 and 9. To load the camera, the hinged cover member 93 is released by means of latch member 94 and is moved to the position illustrated. After a film winding knob 95 is withdrawn, as shown, to retract the spool engaging key, (not shown), from the chamber 89, the magazine is placed in the camera with the rib 91 in mating relation with the channel 92. The cover member may then be closed and the winding knob depressed to engage the key with a suitable clutch member 96 formed in one of the flanges of the film take-up spool. With the cover in its closed position behind the magazine, pressure pads 97 on the magazine are engaged by spring members 98 on the hinged cover member to urge the magazine forward with a bottom surface 99 of the channel 92 in contact with a rear surface 100 of the rib 91, thereby accurately locating the film plane of the magazine with respect to the camera lens system 101. To prevent distortional influences on the magazine in the camera, the lateral positioning of the magazine is determined by the lateral freedom of the rib 91 in the channel 92 so that other portions of the magazine are held out of contact with the camera housing. As is readily apparent, the co-operating rib and slot structure between the camera and magazine also serves to provide a labyrinthic light barrier between the two units so that, of the camera components, only the box-like member 87 need be light-tight.

Exposure Guide Label:

As illustrated in Figures 1 and 10, an exposure guide label 59 appropriate to the particular type of film in a magazine may be attached to the cover thereof in the area surrounding an aperture 102 through which exposure indicating numerals 103, Figure 1, are visible. With the magazine installed in the camera, the exposure guide label and the

exposure indicating numeral aligned with the aperture are visible through a window 104 in the hinged cover member 93. Since the magazine is not intended to be reused, the appropriate label may be permanently attached to the loaded magazine or, if desired, an appropriate guide might be moulded into the magazine back prior to assembling the magazine, in which case, of course, the advantage of being able to load all kinds of film into the same magazine components would be lost.

Magazine Coding Means:

In order to enable an element of a camera to be adjusted automatically according to the sensitivity of the film in a magazine, a physically detectable coding means may be provided on the magazine as shown in a preferred embodiment in Figures 11 to 13. In Figure 11, this coding means comprises a coding notch 105, the position of which along the forwardly projecting rib 106 is empirically determined as a function of the sensitivity or speed of the particular film loaded in the magazine. For example, as viewed in Figure 11, the higher the film speed, the further notch 105 would be from the left end of the rib 106. Figures 12 and 13 show alternate coding means in which the position of an abutment shoulder 105¹ or a projection 105¹¹ along the rib is determined by the speed of the film in a magazine. It should be noted that all of these coding means comprise the removal of material from the rib rather than the addition of material, thereby affording a simple means of coding a standard magazine after it has been loaded with film. The removal of material from the rib is preferably accomplished by punching out a solid section or by locally melting the rib rather than by a sawing or grinding technique, in order to prevent contaminating the magazine with dust or shavings.

A second coding notch or similar means may also be provided on the magazine along a rib 107 as shown at 108 in Figure 11. The position of this coding means along the rib is empirically determined as a function of the type of film in the magazine in order that exposed magazines may be automatically sorted prior to being processed. If a greater range of values were to be coded along either of the ribs than would be practical by means of a single abutment surface, two or more such surfaces might be employed along the rib, for example, in a binary coding system.

Code Responsive Camera Adjustment Means:

Figures 14 and 15 show a mechanism and external construction of a simple camera 109 in which a lens diaphragm opening is automatically set in accordance with the speed of the film in the magazine installed in the camera. This camera corresponds substan-

tially in appearance and basic construction to that shown in Figure 10 and is loaded in the same manner previously described.

A cover latching device employed in the camera comprises a latching member 111 slidably mounted beneath a top wall 112 of the camera housing by a rivet 113 on the wall 112 engaging a slot 114 in the member 111, and by a latch operating element 115 extending through a slot 116 in the wall 112. The camera cover member 117 is hinged at 118 and is held in a closed position by the engagement of a locking pin 119 thereon with a locking arm 120 on the member 111, which, in turn, is urged towards the illustrated locking position by a spring 121 attached to a depending ear 122 of the member 111 and to a mechanism plate 123 supported behind a front wall 124 of the camera housing. A control plate 125 is slidably attached to the mechanism plate 123 by means of rivets 126 and is urged in the same direction as the latching member by a spring 127. A diaphragm operating pin 128 is carried by an arm 129 of the control plate and engages slots 131 and 132 in overlapping diaphragm blades 133 and 134 respectively, which are pivotally supported on the mechanism plate by a stud 135. Due to the angular relation of the slots 131 and 132, the size of a lens aperture 136, determined by the overlapping relation of the blades, is increased as the control plate is moved towards the left as illustrated in the drawing, and is decreased as the plate is moved towards the right.

To open the camera, the latch operating element 115 is moved to the left, thereby sliding the locking arm 120 out of engagement with the locking pin 119. As the plate 111 is thus moved to its extreme left position, a depending lug 137 thereon engages a horizontal arm 138 on the control plate and likewise moves the control plate to its extreme left position, thereby moving the diaphragm blades to the position of maximum lens aperture. With the latch operating element held in the open position, a coded magazine 51 is installed in the camera as previously described and assumes the position shown in Figure 14 relative to the camera mechanism. In this position, a pawl 139, pivotally mounted on an arm 138 by a stud 141, is engaged by the left end of the magazine rib 106 and is moved out of contact with a lug 142 on the arm 138 against the tension of a light spring member 143. The hinged cover member is then closed and retains the magazine in position as previously described. After the cover has been moved to its closed position, the latch operating element 115 is released, and is returned to its extreme right position by the spring 121, to lock the cover. As the member 111 moves to the locking position, the control plate 125 also moves to the right under the influence of the spring 127

until the pawl 139 engages a coding notch 105 or some other form of coding discontinuity along the rib 106 as shown in Figures 11, 12 and 13, thereby adjusting the lens aperture in accordance with the position of the coding means along the rib. Although the foregoing operation has been described with the latch operating element held in the left-most position as the magazine is installed, the latch element may be released prior to the installation of the magazine if desired, in which case the pawl 139 engages the right end of the rib 106. When the latching member is thereafter moved to the left to allow the pin 119 to move past the end of the arm 120 as the cover is completely closed, the pawl 139 rides past the coding means by virtue of its angular disposition as it is moved along the rib to the left end thereof. When the latch element is then released, the pawl is blocked by the coding means during its return stroke as previously described. In either event, however, the magazine is engaged by the spring members on the cover member, as shown at 25 98 in Figure 10, before the pawl moves towards the right along the rib, to ensure that the magazine is held in engagement with the pawl during this operation.

Figures 16 and 17 show an alternative camera construction whereby the code sensing means is actuated by opening the camera cover and adjusts an exposure guide scale in accordance with the speed of the film in the coded magazine. In this construction, those elements designated by primed numerals are similar to the previously described correspondingly designated elements of Figure 14. A control plate 125¹ and a hinged cover member 117¹ are connected by a linkage member 144 pivotally attached to the cover member 117¹ by a pin 145 with a slot 146 in the linkage member in engagement with a stud 147 on an arm 148 of the control plate. Thus, when the cover member is released by means of a latch 94¹ corresponding to that shown in Figure 10, and is moved to its fully opened position parallel to the camera housing, the right end of the slot 146 engages the stud 147 and slides the control plate 125¹ to its extreme left position, where it is held by a detent member 149 mounted on a top wall 112¹ of the housing by a pin 151 and urged into engagement with a notch 152 in the control plate by a spring 153. In order to allow the cover member 117¹ to be fully opened, the linkage member 144 is curved as shown at 152 to clear a cover hinge 118¹. With the cover in its open position, a coded film magazine can be installed in the camera as previously described with the left end of the rib 106 in engagement with a pawl 139¹. As the cover is then returned to its closed position, the slot 146 allows the linkage member 144 to move relative to the pin 147 without disturbing the position of the control plate. During the final stage of the

cover closing operation, after the magazine has been engaged by the spring members 98 on the cover as shown in Figure 10, a detent release pin 155 on the cover engages the detent member 149 and moves it out of engagement with the notch 152 to allow the control plate to be moved to the right by the spring 127¹ until the pawl encounters the coding means along the rib 106.

In this embodiment of the invention, the control plate is provided with a pin 156 in engagement with a radial slot 157 in a disc 158, which is rotatably mounted on the mechanism plate 123¹ by a sleeve member 159 co-axial with the camera lens system. Thus the angular position of the disc 158 is determined by the magazine coding means. A second disc 161, is attached to the disc 158 for movement therewith and is provided with exposure and flash indicating symbols 162 and 163, which are visible through accurate apertures 164 and 165, respectively, of the camera housing. Figure 17 illustrates, for example, the position assumed by the symbols for a hypothetical film speed represented by a coding notch in the intermediate portion of the rib 106. The shutter control ring 166, which regulates the diaphragm opening and/or the shutter speed, as is well known in the prior art, is provided with a daylight exposure index mark 167, which, when aligned with the symbol corresponding to the existing light conditions effects a proper setting of the shutter. Thus, the symbols visible in Figure 17 indicate that a proper exposure may be made under all light conditions ranging from 'Open Shade' to 'Sand or Snow', by aligning the index mark with the appropriate symbol. If the magazine were loaded with slower film, the coding notch would be further to the left so that, for example, only those symbols designating light conditions of 'Hazy Sun', 'Bright Sun', and 'Sand or Snow' would be visible, thereby indicating that proper exposures would be possible only under such lighting conditions. Conversely, a magazine coded for film of high sensitivity would cause the disc to be rotated clockwise so that, for example, the symbols for 'Rainy Day' and 'Cloudy Day' would also be visible, thereby indicating that proper exposures could be made under these conditions.

To facilitate the use of the camera with flash lamps, the indicia visible through window 165 indicates the distance range within which an exposure may be made with film of the type in the magazine with a particular type of lamp, and provide a simple means for adjusting the shutter and/or diaphragm for optimum results at any distance within the permissible range. For example, the position of the flash guide indicia 163 in window 165 of the camera shown in Figure 17 indicates that the shutter and/or diaphragm

can be adjusted for a properly exposed flash illuminated photograph of an object within a range of four to fifteen feet from the camera by aligning a flash distance index mark 168 on the ring 166 with the numeral representing the distance to the subject.

Figure 18 illustrates still another device whereby a camera element may be automatically adjusted to one of three positions in accordance with the presence of a coding notch at one of three corresponding positions along the rib 106 of the magazine. In the illustrated embodiment, this device employs three resilient fingers 231, 232 and 233 attached to the camera mechanism plate 123¹¹. When the magazine 51 is installed in the camera, it is held in engagement with a box-like member 87¹¹ in a manner previously described and as illustrated in Figure 10, and those resilient fingers engaged by rib 106 are displaced towards the front of the camera. Whichever finger is aligned with the coding notch 105, however, remains in its rearward position; for example, as illustrated, the fingers 231 and 233 are displaced, while the finger 232 is received by the coding notch 105.

A control lever 234 is pivotally attached to the mechanism plate at 235 and is provided with a horizontal arm 236 adjacent the resilient fingers. The straight contact surface 237 of the arm is aligned with the pivot 235, as is the forward edge of the rib 106, whereby clockwise movement of the arm about the pivot 235 is limited by whichever finger is in the rearwardmost position. Thus, the further the notch is located to the right, the further the arm 236 may move in a clockwise direction before contacting one of the resilient fingers. The lower end of the lever 234 contacts an ear 238 of a movable aperture blade 239 pivoted to the mechanism plate at 241 and urged in a counter-clockwise direction by a light spring 242. The blade 241 is provided with three different sized apertures 243 to 245, movable into alignment with the camera lens 136¹¹. Due to the location of the pivot 241 relative to the point of contact between the lever 234 and the ear 238, the spring 242 tends to urge the arm 236 into contact with one of the fingers, but is of insufficient strength to displace the finger so engaged.

When the magazine is removed from the camera, all of the fingers assume their rearwardmost position and the arm 236 is rotated in a counter-clockwise direction about the pivot 235 by the finger 231, thereby rotating the blade 239 in a clockwise direction against the influence of the spring 242 to move the largest aperture 243 into alignment with the camera lens 136¹¹. When the magazine is installed in the camera, however, the arm 236 moves clockwise about its pivot under the influence of the spring 242 according to which of the fingers are displaced by the rib. In the illustration, for example, the arm 236 has

moved into engagement with middle finger 232, thereby moving the aperture blade to bring the intermediate aperture 244 into alignment with the camera lens.

Although the illustrated embodiment shows only three resilient fingers responsive to a corresponding number of coding notches, it is obvious that a greater number of fingers and coding positions might be employed if desired. Likewise a single finger might be employed to merely detect the presence or absence of a coding notch in a particular position to adjust a camera element to one of two alternate positions.

Any of the above described code sensing mechanisms, or modifications thereof, could be employed to automatically adjust any element of a camera where such an adjustment is required as a function of film speed.

The subject-matter of the present application is closely related to that of our copending patent applications Nos. 21501/65 (Serial No. 1,034,904), 51874/65 (Serial No. 1,034,905), and 51875/65 (Serial No. 1,034,907).

WHAT WE CLAIM IS:—

1. A photographic roll film magazine having a film take-up and a film supply chamber, an intermediate member connecting the chambers and comprising a front and a rear wall which define a film passageway therebetween, an exposure aperture in the front wall of the intermediate member and tactile means on the intermediate member indicative of the sensitivity of a film contained or to be contained in the magazine.

2. A magazine as claimed in claim 1 wherein the tactile means is provided on a forwardly projecting rib of the intermediate member.

3. A magazine as claimed in claim 1 or 2 wherein the tactile means comprises a notch.

4. A magazine as claimed in claim 1 or 2 wherein the tactile means comprises an abutment.

5. A magazine as claimed in claim 2 and in Claim 3 or 4 wherein the notch on the abutment is defined by a removed portion or portions of the rib.

6. A magazine as claimed in any preceding claim further including second tactile means indicative of the type of film contained or to be contained in the magazine.

7. A magazine as claimed in claim 6 wherein the second tactile means is provided on the front wall of the intermediate member.

8. A magazine as claimed in claim 6 or 7 wherein the first mentioned and second tactile means are provided on the front wall at opposite sides of the exposure aperture.

9. A magazine as claimed in claim 6, 7 or 8 wherein the second tactile means is constituted by a notch or abutment in a forwardly facing rib of the front wall of the intermediate member.

can be adjusted for a properly exposed flash illuminated photograph of an object within a range of four to fifteen feet from the camera by aligning a flash distance index mark 168 on the ring 166 with the numeral representing the distance to the subject.

Figure 18 illustrates still another device whereby a camera element may be automatically adjusted to one of three positions in accordance with the presence of a coding notch at one of three corresponding positions along the rib 106 of the magazine. In the illustrated embodiment, this device employs three resilient fingers 231, 232 and 233 attached to the camera mechanism plate 123¹¹. When the magazine 51 is installed in the camera, it is held in engagement with a box-like member 87¹¹ in a manner previously described and as illustrated in Figure 10, and those resilient fingers engaged by rib 106 are displaced towards the front of the camera. Whichever finger is aligned with the coding notch 105, however, remains in its rearward position; for example, as illustrated, the fingers 231 and 233 are displaced, while the finger 232 is received by the coding notch 105.

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moved into engagement with middle finger 232, thereby moving the aperture blade to bring the intermediate aperture 244 into alignment with the camera lens.

Although the illustrated embodiment shows only three resilient fingers responsive to a corresponding number of coding notches, it is obvious that a greater number of fingers and coding positions might be employed if desired. Likewise a single finger might be employed to merely detect the presence or absence of a coding notch in a particular position to adjust a camera element to one of two alternate positions.

Any of the above described code sensing mechanisms, or modifications thereof, could be employed to automatically adjust any element of a camera where such an adjustment is required as a function of film speed.

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WHAT WE CLAIM IS:—

1. A photographic roll film magazine having a film take-up and a film supply chamber, an intermediate member connecting the chambers and comprising a front and a rear wall which define a film passageway therebetween, an exposure aperture in the front wall of the intermediate member and tactile means on the intermediate member indicative of the sensitivity of a film contained or to be contained in the magazine.
2. A magazine as claimed in claim 1 wherein the tactile means is provided on a forwardly projecting rib of the intermediate member.
3. A magazine as claimed in claim 1 or 2 wherein the tactile means comprises a notch.
4. A magazine as claimed in claim 1 or 2 wherein the tactile means comprises an abutment.
5. A magazine as claimed in claim 2 and in Claim 3 or 4 wherein the notch on the abutment is defined by a removed portion or portions of the rib.
6. A magazine as claimed in any preceding claim further including second tactile means indicative of the type of film contained or to be contained in the magazine.
7. A magazine as claimed in claim 6 wherein the second tactile means is provided on the front wall of the intermediate member.
8. A magazine as claimed in claim 6 or 7 wherein the first mentioned and second tactile means are provided on the front wall at opposite sides of the exposure aperture.
9. A magazine as claimed in claim 6, 7 or 8 wherein the second tactile means is constituted by a notch or abutment in a forwardly facing rib of the front wall of the intermediate member.



10. A magazine as claimed in claim 9 wherein the notch or abutment is defined by a removed portion or portions of the rib.
11. A photographic roll film magazine substantially as hereinbefore described with reference to and as illustrated in Figures 1 to 9 and 11 or Figures 1 to 9 and Figure 12 or Figures 1 to 9 and 13 of the accompanying drawings.
12. A method of coding a photographic roll film magazine as claimed in claim 1, so as to provide tactile means indicative of the sensitivity of a film contained or to be contained therein, which comprises the step of removing material from the magazine at a preselectable location thereof to establish a tactile surface discontinuity.
13. A method as claimed in claim 12 wherein the material is removed by punching out a solid section.
14. A method as claimed in claim 12 wherein the magazine is of a moulded plastics material and the material is removed by melting.
15. A method as claimed in claim 12, 13 or 14 wherein the magazine provides film take-up and film supply chambers connected by an intermediate member having an exposure aperture surrounded by a forwardly projecting rib and a portion or portions of this rib are removed providing the tactile surface discontinuity.
16. A method as claimed in claim 15 wherein a portion of the rib is removed to provide a notch constituting the surface discontinuity.
17. A method as claimed in claim 16 wherein a portion or portions of the rib is or are removed to provide a shoulder or abutment constituting the tactile surface discontinuity.
18. A method as claimed in any of claims 12 to 17 wherein a further portion of the material of the magazine is removed at a preselectable location thereof to establish a tactile surface discontinuity indicative of the type of film contained or to be contained in the magazine.
19. A method of coding a photographic roll film magazine substantially as hereinbefore described.
20. A photographic roll film camera having spaced recesses arranged to receive film supply and take-up chambers of a roll film magazine as claimed in claim 1, a seat between the recesses and surrounding an optical axis of the camera, for the intermediate member connecting the film supply and take-up chambers of the magazine and sensing means for sensing the tactile indication of film sensitivity located on the intermediate member of the magazine, the sensing means being arranged to adjust an exposure regulator in accordance with the sensed indication.
21. A camera as claimed in claim 20 wherein the seat has a rib which mates in a light-tight manner with a groove of the intermediate member of a magazine, the groove being defined by a pair of parallel forwardly projecting ribs peripherally of an exposure aperture in the intermediate member of the magazine.
22. A camera as claimed in claim 21 wherein the tactile indication is defined by a removed portion or portions of one of the ribs of the magazine and the sensing means is resiliently urged towards engagement with that rib when a magazine is located in the camera.
23. A camera as claimed in claim 22 wherein the sensing means comprises one or more resilient fingers each arranged to flex when no notch is present and to adjust an exposure regulator in accordance with their flexed or non-flexed state.
24. A camera as claimed in claim 23 wherein the exposure regulator comprises a pivoted control lever arranged to move into contact with the or a projecting one of the fingers and to position a lens diaphragm in accordance with the finger contacted.
25. A camera as claimed in claim 22 wherein the sensing means comprises a pawl arranged to ride along that rib of a magazine containing the notch and to engage the notch, the pawl, by its engaged position, adjusting an exposure regulating device in accordance with the speed of film as indicated by the position of the notch.
26. A camera as claimed in claim 25 wherein the pawl is pivotally mounted on a control plate slidable in the longitudinal direction of the rib of a cartridge loaded in the camera and resiliently loaded so as to cause the pawl to ride along the rib.
27. A camera as claimed in claim 26 wherein the control plate is coupled to a latch mechanism of a back of the camera and is moved to a first position, against the action of its spring, when the latch mechanism is moved to open the camera back, the control plate returning to a rest position under the action of its spring when the latch mechanism is moved to lock the camera back and, in so doing, causing the pawl to ride along the rib to locate the notch.
28. A camera as claimed in claim 26 or 27 wherein the control plate is arranged to adjust a lens diaphragm of the camera.
29. A camera as claimed in claim 28 wherein the lens diaphragm is formed by a pair of co-operating notched blades pivoted at a common pivot and having oppositely inclined slots therein, a pin of the control plate extending through the slots so that movement of the control plate adjusts the position of the blades to vary the diaphragm aperture.
30. A camera as claimed in claim 26



or 27 wherein the control plate is arranged to adjust an exposure disc.

31. A camera as claimed in claim 30 wherein a lens diaphragm of the aperture is adjustable relative to the disc so as to co-ordinate the film speed with exposure lighting conditions.

32. A photographic camera substantially

as hereinbefore described with reference to and as illustrated in Figures 14 and 15 or 10 Figures 16 and 17 or Figure 18 of the accompanying drawings.

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Abingdon: Printed for Her Majesty's Stationery Office, by Burgess & Son (Abingdon), Ltd.—1966.
Published at The Patent Office, 25 Southampton Buildings, London, W.C.2,
from which copies may be obtained.

