

Description

The invention relates generally to the field of photography, and particularly to a film cassette containing roll film. More specifically, the invention relates to a film cassette that is capable of automatically advancing a non-protruding film leader to the exterior of the cassette shell responsive to unwinding rotation of a film spool within the shell.

In conventional 35mm film manufacturers' cassettes, such as manufactured by Eastman Kodak Co. and Fuji Photo Film Co. Ltd., the filmstrip is wound on a flanged spool which is rotatably supported within a cylindrical shell. A leading or forward-most section of the filmstrip approximately 2 1/3 inches long, commonly referred to as a "film leader", normally protrudes from a light-trapped slit or mouth of the cassette shell. One end of the spool has a short axial extension which projects from the shell, enabling the spool to be turned by hand. If the spool is initially rotated in an unwinding direction, the film roll inside the shell will tend to expand radially since the inner end of the filmstrip is attached to the spool, and the fogged leader section protruding from the slit will remain stationary. The film roll can expand radially until a firm non-slipping relation is established between its outermost convolution and the inner curved wall of the shell. Once this non-slipping relation exists, there is a binding effect between the film roll and the shell which prevents further rotation of the spool in the unwinding direction. Thus, rotation of the spool in the unwinding direction cannot serve to advance the filmstrip out of the shell, and it is necessary in the typical 35mm camera to engage the protruding leader section to draw the filmstrip out of the shell.

A 35mm film cassette has been proposed which, unlike conventional film cassettes, can be operated to automatically advance a film leader out of the cassette shell by rotating the film spool in the unwinding direction. The film leader originally is located entirely inside the cassette shell. Specifically, in U.S. Pat. No. 4,423,943, granted January 3, 1984, there is disclosed a film cassette wherein the outermost convolution of the film roll wound on the film spool is radially constrained by respective circumferential lips of two axially spaced flanges of the spool to prevent the outermost convolution from contacting an inner curved wall of the cassette shell. The trailing end of the filmstrip is secured to the film spool, and the forward or leading end of the filmstrip is slightly tapered purportedly to allow it to freely extend from between the circumferential lips and rest against the shell wall at a location inwardly of a non-lighttight film passageway to the outside of the cassette shell. During initial unwinding rotation of the film spool, the leading end of the filmstrip is advanced along the shell

wall until it reaches an inner entrance to the film passageway. Then, it is advanced into and through the film passageway to the outside of the cassette shell. The passageway has a width that is less than the width of the filmstrip, thus resulting in the filmstrip being transversely bowed as it is uncoiled from the film spool, and thereby facilitating movement of the film edges under the circumferential lips of the respective flanges. However, severe transverse bowing of the filmstrip in order to move its longitudinal edges under the circumferential lips may damage the filmstrip.

Like the type of film cassette disclosed in U.S. Pat. No. 4,423,943, commonly assigned Pats. No. 4,834,306, granted May 30, 1989, and No. 4,848,693, granted July 18, 1989, each disclose a film cassette that is capable of automatically advancing a non-protruding film leader to the outside of the cassette shell in response to rotation of the film spool in the unwinding direction. Specifically, there is disclosed a film cassette wherein a film roll is wound on a spool between a pair of coaxially spaced, independently rotatable flanges. The two flanges have respective circumferential annular lips which prevent the outermost convolution of the film roll, including its leading end, from clock-springing into contact with the interior wall of the cassette shell. When the spool is initially rotated in the unwinding direction, the film roll, since its inner end is secured to the spool, tends to expand radially to ensure a firm non-slipping relation between the outermost convolution and the annular lips. Once the non-slipping relation exists, continued rotation of the spool will similarly rotate the flanges. This allows stationary internal spreaders to deflect successive portions of the annular lips to an axial dimension exceeding the film width, in turn allowing the leading end and successive sections of the film roll to be freed from the radial confinement of the annular lips and to be advanced into and through a lighttight film passageway to the outside of the cassette shell. A stripper-guide is located adjacent an inner entrance to the film passageway to divert the leading end of the film roll into the passageway. To accomplish this, the stripper-guide must be received between the leading end and the next-inward convolution of the film roll. If, however, the film cassette is used during extremely high temperature and/or humidity conditions, it might be possible that the leading end after being freed from the radial confinement of the annular lips will retain a great deal of inward curl. Consequently, the leading end will not have sufficient clock-spring to separate sufficiently from the next-inward convolution to move over the stripper-guide. Thus, when the spool is rotated in the unwinding direction, the leader end may not be picked up by the stripper-guide and guided into the film passageway. An

other problem is that the leading end may be slightly transversely bowed after being freed from the annular lips. Thus, when the leading end is moved over the stripper-guide, the leading end may stub at the inner entrance to the film passageway.

According to the invention, a film cassette is provided wherein a spool is rotatably arranged within a cassette shell, a convoluted film roll whose outermost convolution comprises a film leader is coiled about the spool, a pair of flanges are coaxially arranged on the spool to radially confine the film leader within respective skirted peripheries of the flange to prevent the leader from substantially contacting an interior wall of the cassette shell, and a film stripper projecting from the interior wall is arranged between the film leader and the next-inward convolution of the film roll to remove successive sections of the film leader from the flanges responsive to rotation of the spool in a film unwinding direction, to allow the film leader to enter an essentially non-curving lighttight passageway to the exterior of the cassette shell, characterized in that:

film flattening means projects from the interior wall of the cassette shell in the vicinity of the film stripper and the non-curving passageway for supporting successive sections of the film leader substantially flat as those sections are freed from the flanges, to facilitate initial and subsequent movement of the leader into the non-curving passageway; and

the flanges are sufficiently flexible to allow the film leader to flex the flanges away from one another at their skirted peripheries, when the spool is rotated in the film unwinding direction with the film stripper arranged between the film leader and the next-inward convolution of the film roll, to free successive sections of the film leader from the flanges.

FIG. 1 is an exploded perspective view of a film cassette according to a preferred embodiment of the invention;

FIG. 2 is an elevation view of the film cassette, illustrating the cassette shell open to reveal a film roll coiled about a film spool;

FIG. 3 is an end view partly in cross-section of the cassette shell, the film roll, and the film spool, illustrating the manner in which the film roll is originally stored on the film spool;

FIGS. 4, 5, 6 and 7 are end views similar to FIG. 3, illustrating the manner in which the film roll is unwound from the film spool;

FIGS. 8 and 9 are elevation views of the film roll and the film spool, illustrating the manner in which the film roll is originally stored on the film spool;

FIGS. 10 and 11 are elevation views similar to FIGS. 8 and 9, illustrating the manner in which

the film roll is unwound from the film spool; and FIG. 12 is an exploded perspective view similar to FIG. 1, according to an alternate embodiment of the invention.

The invention is disclosed as being embodied preferably in a 35mm film cassette. Because the features of this type of film cassette are generally well known, the description which follows is directed in particular to elements forming part of or cooperating directly with the disclosed embodiment. It is to be understood, however, that other elements not specifically shown or described may take various forms known to persons of ordinary skill in the art.

Referring now to the drawings, FIGS. 1 and 2 depict an improved 35mm film cassette 1 comprising a light-tight cassette shell 3 and a film spool 5 which is rotatable about an axis X in film unwinding and winding directions U and W within the cassette shell. The cassette shell 3 consists of two shell halves 7 and 9 which are mated along respective grooved and stepped edge portions 11 and 13. The mated halves 7 and 9 define upper and lower aligned circular openings 15 and 17 for relatively shorter and longer opposite end extensions 19 and 21 of a spool core or hub 23, and they define a narrow relatively-straight film passageway 25 to the exterior of the cassette shell 3. The longer and shorter end extensions 19 and 21 of the spool core 23 each include an annular groove 27 which mates with a corresponding edge 29 of the respective openings 15 and 17 to rotatably support the film spool 5 for rotation about the axis X in the film unwinding and winding directions U and W. A known black velvet or plush material 31 lines the interior of the film passageway 25 to prevent ambient light from entering the film passageway.

A roll 33 of 35mm filmstrip F is coiled about the spool core 23 to form successive film convolutions. As shown in FIG. 3, the film roll 33 includes an outermost convolution which comprises a film leader 35 having a leading or forward end 37, and it includes a next-inward convolution 39 coiled behind the outermost convolution. The inner or trailing end of an innermost convolution, not shown, of the film roll 33 is secured to the spool core 23.

A pair of upper and lower identical, very thin, flexible film constraining flanges 41 and 43 are coaxially spaced along the spool core 23 as shown in FIGS. 1, 2, and 8. The two flanges 41 and 43 comprise respective integral disks 45 and 47 and respective integral annular lips or skirts 49 and 51 which circumferentially extend from the disks. The two disks 45 and 47 cover opposite flat sides, not shown, of the film roll 33 which are defined by corresponding opposite longitudinal edges 53 and 55 of each successive convolution of the film roll, and they have respective central holes, not shown,

through which the spool core 23 axially extends to permit rotation of the spool core relative to the flanges 41 and 43. See FIG. 8. The annular lips 49 and 51 overlap the film leader (outermost convolution) 35 of the film roll 33 radially outwardly of the respective longitudinal edges 53 and 55 of the leader to radially confine the leader to thus prevent it from radially expanding or clock-springing into substantial contact with an interior curved wall 57 of the cassette shell 3. A lip-receiving notch 59 is cut into the film leader (outermost convolution) 35 along its longitudinal edge 55, relatively close to its leading end 37, to receive a peripheral section 51' of the annular lip 51. This allows a relatively short edge-section 61 of the film leader (outermost convolution) 35 connecting the leading end 37 and the notch 59 to overlap the annular lip 51 radially outwardly to thus maintain the leading end spaced a radial distance D from the next-inward convolution 39 of the film roll 33. See FIGS. 4 and 9. The leading end 37 has a forward edge 63 inclined from the longitudinal edge 53 of the film leader (outermost convolution) 35 to the other longitudinal edge 55 of the leader to form a forward-most tip or tab 65 of the leader which, like the edge-section 61, overlaps the annular lip 51 radially outwardly. See FIGS. 1, 2, 8 and 9.

A film stripper-guide 67 projecting from the interior wall 57 of the cassette half 7 is positioned immediately inward of the inner entrance to the film passageway 25 to be received between the leading end 37 of the film leader (outermost convolution) 35 and the next-inward convolution 39, close to the forward-most tip 65 of the leader, to pick up the leading end and guide it into the film passageway responsive to rotation of the film spool 5 in the unwinding direction U. See FIGS. 1 and 4-7. The leading end 37 will be advanced over the stripper-guide 67 and into the film passageway 25, rather than between the stripper-guide and the next-inward convolution 39, because it is spaced the radial distance D from the latter convolution. Thus, as shown in FIG. 4, the leading end 37 will be located within range of the stripper-guide 67 due to such spacing D from the next-inward convolution 39.

When the leading end 37 of the film leader (outermost convolution) 35 is advanced over the stripper-guide 67 responsive to rotation of the film spool 5 in the unwinding direction U, the longitudinal edges 53 and 55 of the leader start to gently flex respective arcuate portions of the two flanges 41 and 43 axially away from one another as shown in FIG. 11, first to allow the notch 59 to separate from the lip section 51', and then to allow successive longitudinal sections of the leader to exit from between the flanges to the outside of the cassette shell 3. The local flexing of the flanges 41 and 43

occurs because the film width W_F between the longitudinal film edges 53 and 55 is slightly greater than the axial spacing A_S between the annular lips 49 and 51. Moreover, successive convolutions of the film roll 33 have a resistance to transverse bowing that is greater than the resistance of the flanges 41 and 43 to be locally flexed. A pair of flat curved bearing members 69 extend from the interior wall 57 of the cassette shell 3 to lie flatly against successive arcuate portions of the two disks 45 and 47 as the flanges 41 and 43 are locally flexed axially away from one another, to thereby assure return of the flexed portions of the flanges to their normal original non-flexed condition. See FIGS. 1 and 2.

A film flattening member 71 projects from the interior wall 57 of the cassette half 9 in the vicinity of the inner entrance to the film passageway 25 and the stripper-guide 67 to support successive longitudinal sections of the film leader 35, beginning with its leading end 37, substantially flat as those sections are freed from the flanges 41 and 43, to facilitate movement of the leading end into the passageway. See FIGS. 6 and 7. The light-trapping plush 31 within the film passageway 25 is elevated along the passageway slightly beyond a longitudinal center line L of the passageway. The film flattening member 71 as shown in FIG. 3 projects almost to the center line L in order to support successive sections of the film leader 35 substantially flat at the center line. See FIGS. 6 and 7. Preferably, a substantially planar film-supporting face 73 of the flattening member 71 is spaced .005" - .030" short of the center line L, and extends widthwise of the film passageway 25 as shown in FIG. 1.

A slot 75 is cut in the film leader 35 substantially proximate its leading end 37. A tooth 77 fixed to the interior wall 57 of the cassette half 7 has a free pointed end 79 which is positioned to be received in the slot 75 to thus engage the film leader (outermost convolution) 35, when the film spool 5 is rotated in the winding direction W as shown in FIG. 3, and to exit the slot to thus disengage the leader, when the film spool is rotated in the unwinding direction U as shown in FIG. 4. The engagement of the film leader (outermost convolution) 35 and the tooth 77 responsive to rotation of the film spool 5 in the winding direction W prevents the leading end 37 of the leader from coming to rest between the stripper-guide 67 and the next-inward convolution 39.

When the spool core 23 is initially rotated in the unwinding direction U, the two flanges 41 and 43 momentarily may remain stationary and the film roll 33, since its inner end is attached to the spool core, tends to expand radially or clock-spring to ensure a firm non-slipping relation between the film

leader (outermost convolution) 35 and the annular lips 49 and 51 of the flanges. Then, further rotation of the spool core 23 will similarly rotate the flanges 41 and 43. As a result, the leading end 37 of the film leader (outermost convolution) 35 will be advanced over the stripper-guide 67, causing successive arcuate portions of the flanges 41 and 43 to be flexed axially away from one another as shown in FIG. 11. This first allows the notch 59 to separate from the lip section 51', and then it allows successive longitudinal sections of the film leader 35 to exit from between the flanges to the outside of the cassette shell 3. Since the stripper-guide 67 initially picks up the leading end 37 of the film leader 35 to close to its forward-most tip 65, the forward edge 63 of the leading end might initially be supported along a narrow ridge 81 forming one end of the interior wall 57 of the cassette half 7. However, the leading end 37 will tend to back away from the ridge 81 and move against the film-supporting face 73 of the flattening member 71 as shown in FIG. 6.

If the film spool 5 is rotated in the winding direction W before substantially the entire length of the filmstrip is advanced to the outside of the cassette shell 3, and it is desired to subsequently use the remaining available portion of the filmstrip at a later time, the film spool is rotated substantially until the slot 75 receives the free end 79 of the tooth 77 to thus engage the film leader (outermost convolution) 35 to the tooth. Thereafter, to use the remaining available portion of the filmstrip, the film spool 5 is rotated in the unwinding direction U to disengage the film leader (outermost convolution) 35 from the tooth 77 and to re-advance the filmstrip to the outside of the cassette shell 3.

FIG. 12 shows an alternate embodiment of the film flattening member 71, which is designated as 71'. According to this embodiment, the film flattening member 71' includes on its film-supporting face 73' a pair of very slightly raised ribs 83 arranged to support successive longitudinal sections of the film leader 35 proximate its longitudinal edges 53 and 55 to lessen the intimacy of contact between those sections and the film-supporting face 73'. Preferably, the ribs 83 are raised .005" - .010" from the film-supporting face 73'.

The invention has been described with reference to a preferred alternate embodiment. However, it will be appreciated that variations and modifications can be effected within the ordinary skill in the art without departing from the scope of the invention as defined in the claims.

Claims

1. A film cassette (1) wherein a spool (5) is rotatably arranged within the cassette shell (3),

a convoluted film roll (33) whose outermost convolution (35) comprises a film leader (35) is coiled about said spool (5), a pair of flanges (41, 43) are coaxially arranged on said spool (5) to radially confine said film roll (33) coiled about the spool within respective skirted peripheries (49, 51) of said flanges to prevent said film leader (35) from substantially uncurling into an annular space between said skirted peripheries and an interior curved wall (57) of said cassette shell (3), and a film stripper (67) is arranged between said film leader (35) and the next-inward convolution (39) of said film roll (33) to remove successive sections of the film leader from said flanges (41, 43) responsive to rotation of said spool (5) in a film unwinding direction (U), to allow the film leader (35) to enter an essentially non-curving light-tight passageway (25) to the exterior of said cassette shell (3), characterized in that:

film flattening means (71, 71') is formed integrally with said interior curved wall (57) of the cassette shell (3) and projects from the curved wall into said annular space, only in the vicinity of said film stripper (67) and said non-curving passageway (25), for supporting successive sections of said film leader (35) substantially flat to facilitate initial and subsequent movement of the leader into the non-curving passageway; and

said flanges (41, 43) are sufficiently flexible to allow said film leader (35) to flex the flanges away from one another at their skirted peripheries (49, 51), when said spool (5) is rotated in the film unwinding direction (U) with said film stripper (67) arranged between the film leader and the next-inward convolution (39) of said film roll, to free successive sections of the film leader from the flanges.

2. A film cassette (1) as recited in claim 1, wherein said non-curving passageway (25) is lined with a light-trapping plush (31) that protrudes into the passageway at least to a longitudinal center line (L) of the passageway, and said film flattening means (71, 71') includes a film flattening member (71, 71') that projects from the interior curved wall (57) of said cassette shell (3) almost to the longitudinal center line (L) of the passageway (25) to support successive sections of said film leader (35) substantially flat at the longitudinal center line.
3. A film cassette (1) as recited in claim 2 wherein said film flattening member (71, 71') has a flat film-supporting face (73, 73') that longitudinally extends widthwise of said non-curving passageway (25) to support successive

leader (outermost convolution) 35 and the annular lips 49 and 51 of the flanges. Then, further rotation of the spool core 23 will similarly rotate the flanges 41 and 43. As a result, the leading end 37 of the film leader (outermost convolution) 35 will be advanced over the stripper-guide 67, causing successive arcuate portions of the flanges 41 and 43 to be flexed axially away from one another as shown in FIG. 11. This first allows the notch 59 to separate from the lip section 51', and then it allows successive longitudinal sections of the film leader 35 to exit from between the flanges to the outside of the cassette shell 3. Since the stripper-guide 67 initially picks up the leading end 37 of the film leader 35 to close to its forward-most tip 65, the forward edge 63 of the leading end might initially be supported along a narrow ridge 81 forming one end of the interior wall 57 of the cassette half 7. However, the leading end 37 will tend to back away from the ridge 81 and move against the film-supporting face 73 of the flattening member 71 as shown in FIG. 6.

If the film spool 5 is rotated in the winding direction W before substantially the entire length of the filmstrip is advanced to the outside of the cassette shell 3, and it is desired to subsequently use the remaining available portion of the filmstrip at a later time, the film spool is rotated substantially until the slot 75 receives the free end 79 of the tooth 77 to thus engage the film leader (outermost convolution) 35 to the tooth. Thereafter, to use the remaining available portion of the filmstrip, the film spool 5 is rotated in the unwinding direction U to disengage the film leader (outermost convolution) 35 from the tooth 77 and to re-advance the filmstrip to the outside of the cassette shell 3.

FIG. 12 shows an alternate embodiment of the film flattening member 71, which is designated as 71'. According to this embodiment, the film flattening member 71' includes on its film-supporting face 73' a pair of very slightly raised ribs 83 arranged to support successive longitudinal sections of the film leader 35 proximate its longitudinal edges 53 and 55 to lessen the intimacy of contact between those sections and the film-supporting face 73'. Preferably, the ribs 83 are raised .005" - .010" from the film-supporting face 73'.

The invention has been described with reference to a preferred alternate embodiment. However, it will be appreciated that variations and modifications can be effected within the ordinary skill in the art without departing from the scope of the invention as defined in the claims.

Claims

1. A film cassette (1) wherein a spool (5) is rotatably arranged within the cassette shell (3),

a convoluted film roll (33) whose outermost convolution (35) comprises a film leader (35) is coiled about said spool (5), a pair of flanges (41, 43) are coaxially arranged on said spool (5) to radially confine said film roll (33) coiled about the spool within respective skirted peripheries (49, 51) of said flanges to prevent said film leader (35) from substantially uncurling into an annular space between said skirted peripheries and an interior curved wall (57) of said cassette shell (3), and a film stripper (67) is arranged between said film leader (35) and the next-inward convolution (39) of said film roll (33) to remove successive sections of the film leader from said flanges (41, 43) responsive to rotation of said spool (5) in a film unwinding direction (U), to allow the film leader (35) to enter an essentially non-curving light-tight passageway (25) to the exterior of said cassette shell (3), characterized in that:

film flattening means (71, 71') is formed integrally with said interior curved wall (57) of the cassette shell (3) and projects from the curved wall into said annular space, only in the vicinity of said film stripper (67) and said non-curving passageway (25), for supporting successive sections of said film leader (35) substantially flat to facilitate initial and subsequent movement of the leader into the non-curving passageway; and

said flanges (41, 43) are sufficiently flexible to allow said film leader (35) to flex the flanges away from one another at their skirted peripheries (49, 51), when said spool (5) is rotated in the film unwinding direction (U) with said film stripper (67) arranged between the film leader and the next-inward convolution (39) of said film roll, to free successive sections of the film leader from the flanges.

2. A film cassette (1) as recited in claim 1, wherein said non-curving passageway (25) is lined with a light-trapping plush (31) that protrudes into the passageway at least to a longitudinal center line (L) of the passageway, and said film flattening means (71, 71') includes a film flattening member (71, 71') that projects from the interior curved wall (57) of said cassette shell (3) almost to the longitudinal center line (L) of the passageway (25) to support successive sections of said film leader (35) substantially flat at the longitudinal center line.
3. A film cassette (1) as recited in claim 2 wherein said film flattening member (71, 71') has a flat film-supporting face (73, 73') that longitudinally extends widthwise of said non-curving passageway (25) to support successive



sections of said film leader (35) substantially flat across the passageway.

4. A film cassette (1) as recited in claim 4, wherein said film-supporting face (73') includes a pair of slightly raised rib-like members (83) arranged on the film-supporting face to support successive sections of said film leader (35) proximate respective longitudinal edges of the film leader to lessen the intimacy of contact between those sections and the film-supporting face.
5. A film cassette (1) as recited in claim 1, wherein said film flattening means (71) includes a flat film flattening face (73) that is arranged opposite said film stripper (67) to support successive sections of said film leader (35) substantially flat as those sections are moved over the stripper.

Patentansprüche

1. Filmpatrone (1), in der eine Spule (5) innerhalb des Patronengehäuses (3) drehbar angeordnet ist, die einen Filmwickel (33) besitzt, dessen äußerste Windung (35) einen Filmanfang (35) aufweist und der auf die Spule (5) gewickelt ist, in der zwei Flansche (41, 43) koaxial an der Spule (5) angebracht sind, um den um die Spule gewickelten Filmwickel (33) innerhalb entsprechender Stülpränder (49, 51) der Flansche radial zu begrenzen und so zu verhindern, daß der Filmanfang (35) im wesentlichen in einen ringförmigen Raum zwischen den Stülprändern und einer gekrümmten Innenwandung (57) des Patronengehäuses (3) aufspringt, und in der ein Filmleitelement (67) zwischen dem Filmanfang (35) und der benachbarten Windung (39) des Filmwickels (33) angeordnet ist, um in Abhängigkeit von der Drehung der Spule (5) in einer Filmabspulrichtung (U) aufeinanderfolgende Abschnitte des Filmanfangs von den Flanschen (41, 43) abzuheben, damit der Filmanfang (35) in einen im wesentlichen nicht gekrümmten, lichtdichten, aus dem Patronengehäuse (3) herausführenden Filmkanal (25) eintreten kann, dadurch gekennzeichnet, daß

Filmausrichtmittel (71, 71') einstückig mit der gekrümmten Innenwandung (57) des Patronengehäuses ausgebildet sind und sich lediglich in der Nähe des Filmleitelements (67) und des nicht gekrümmten Filmkanals (25) derart von der Innenwandung aus in den ringförmigen Raum erstrecken, daß sie aufeinanderfolgende Abschnitte des Filmanfangs (35) im wesentlichen ausrichten und damit eine erste und eine

anschließende Bewegung des Filmanfangs in dem nicht gekrümmten Filmkanal erleichtern, und daß

die Flansche (41, 43) so flexibel sind, daß der Filmanfang (35) sie an den Stülprändern (49, 51) auseinanderbiegt, wenn die Spule (5) sich in der Filmabspulrichtung (U) dreht, wobei das Filmleitelement (67) so zwischen dem Filmanfang und der benachbarten Windung (39) der Filmwickel angeordnet ist, daß aufeinanderfolgende Abschnitte des Filmanfangs von den Flanschen abgehoben werden.

2. Filmpatrone (1) nach Anspruch 1, dadurch gekennzeichnet, daß der nicht gekrümmte Filmkanal (25) mit einem Lichtdichtungssplüsch (31) versehen ist, der in den Filmkanal zumindest bis zu dessen längs verlaufender Mittellinie (L) hineinragt, und daß die Filmausrichtmittel (71, 71') ein Filmausrichtelement (71, 71') umfassen, das sich von der gekrümmten Innenwandung (57) des Patronengehäuses (3) nahezu bis zur längs verlaufenden Mittellinie (L) des Filmkanals (25) erstreckt und aufeinanderfolgende Abschnitte des Filmanfangs (35) im wesentlichen mit der längs verlaufenden Mittellinie ausgerichtet hält.
3. Filmpatrone (1) nach Anspruch 2, dadurch gekennzeichnet, daß das Filmausrichtelement (71, 71') eine plane Filmauflagefläche (73, 73') aufweist, die sich in Längsrichtung quer zum nicht gekrümmten Filmkanal (25) erstreckt und aufeinanderfolgende Abschnitte des Filmanfangs (35) im wesentlichen quer zum Filmkanal plan hält.
4. Filmpatrone (1) nach Anspruch 3, dadurch gekennzeichnet, daß die Filmauflagefläche (73') zwei leicht erhabene Rippen (83) aufweist, die auf der Filmauflagefläche angeordnet sind und aufeinanderfolgende Abschnitte des Filmanfangs (35) in der Nähe der jeweiligen Längskanten des Filmanfangs hält, um den engen Kontakt zwischen diesen Abschnitten und der Filmauflagefläche zu verringern.
5. Filmpatrone (1) nach Anspruch 1, dadurch gekennzeichnet, daß die Filmausrichtmittel (71) eine plane Filmausrichtfläche (73) aufweisen, die gegenüber dem Filmleitelement (67) angeordnet ist und aufeinanderfolgende Abschnitte des Filmanfangs (35) im wesentlichen ausrichtet, während diese Abschnitte über das Filmleitelement bewegt werden.



Revendications

1. Cassette pour film (1) dans laquelle une bobine (5) est disposées de manière à pouvoir tourner à l'intérieur de l'enveloppe de cassette (3), un rouleau de film en spirale (33) dont la spire la plus extérieure (35) comprend une amorce de film (35) est enroulé autour de ladite bobine (5), une paire de brides (41, 43) sont coaxialement disposées sur ladite bobine (5) pour confiner radialement ledit rouleau de film (33) enroulé autour de la bobine à l'intérieur des contours limités respectifs (49, 51) desdites brides afin d'empêcher ladite amorce de film (35) de se dérouler sensiblement pratiquement dans un espace annulaire situé entre les contours limités et une paroi incurvée intérieure (57) de ladite enveloppe de cassette (3), et un séparateur de film (67) est disposé entre ladite amorce de film (35) et la spire intérieure suivante (39) dudit rouleau de film (33) afin d'enlever les sections successives de l'amorce à partir desdites brides (41, 43) en réponse à la rotation de ladite bobine (5) dans une direction de déroulement du film (U), pour permettre à l'amorce (35) d'entrer dans un passage étanche à la lumière essentiellement non courbé (25) vers l'extérieur de ladite enveloppe de cassette (3), caractérisée en ce que :
un moyen d'aplatissement du film (71, 71') est formé solidairement avec ladite paroi incurvée à l'intérieur (57) de l'enveloppe de cassette (3) et fait saillie à partir de la paroi incurvée dans ledit espace annulaire, seulement au voisinage dudit séparateur de film (67) et dudit passage non incurvé (25), pour supporter les sections successives de ladite amorce de film (35) pratiquement plate pour faciliter le mouvement initial et ultérieur de l'amorce dans le passage non incurvé, et
lesdites brides (41, 43) sont suffisamment souples pour permettre à ladite amorce de film (35) de faire fléchir les brides à l'opposé l'une de l'autre à leurs contours limités (49, 51) lorsque ladite bobine (5) est entraînée en rotation dans la direction de manière à pouvoir tourner à l'intérieur de l'enveloppe de cassette (3), un rouleau de film en spirale (33) dont la spire la plus extérieure (35) comprend une amorce de film (35) est enroulé autour de ladite bobine (5), une paire de brides (41, 43) sont coaxialement disposées sur ladite bobine (5) pour confiner radialement ledit rouleau de film (33) enroulé autour de la bobine à l'intérieur de la direction de déroulement de film (U), avec ledit séparateur de film (67) disposé entre l'amorce et la spire intérieure suivante (39) dudit rouleau de film afin de libérer des sections successives

de l'amorce à partir des brides.

2. Cassette pour film (1) selon la revendication 1, dans laquelle ledit passage non courbé (25) est revêtu d'un matériau de type peluche empêchant la lumière de passer (31) qui dépasse dans le passage au moins à une ligne centrale longitudinale (L) du passage et ledit moyen d'aplatissement du film (71, 71') comporte un élément d'aplatissement de film (71, 71') qui dépasse à partir de la paroi intérieure incurvée (57) de ladite enveloppe de cassette (3) presque sur la ligne centrale longitudinale (L) du passage (25) pour supporter les sections successives de ladite amorce de film (35) pratiquement plate au niveau de la ligne centrale longitudinale.
3. Cassette pour film (1) selon la revendication 2, dans laquelle ledit élément d'aplatissement de film (71, 71') comporte une face supportant le film plat (73, 73') qui se prolonge longitudinalement dans le sens de la largeur dudit passage non courbé (25) pour supporter les sections successives de ladite amorce de film (35) pratiquement plate à travers le passage.
4. Cassette pour film (1) selon la revendication 4, dans laquelle ladite face supportant le film (73') comporte une paire d'éléments de type nervures légèrement surélevés (83) disposés sur la face supportant le film pour supporter les sections successives de ladite amorce de film (35) proche des bords longitudinaux respectifs de l'amorce de film pour diminuer le contact intime entre ces sections et la face supportant le film.
5. Cassette pour film (1) selon la revendication 1, dans laquelle ledit moyen d'aplatissement de film (71) comporte une face d'aplatissement de film (73) plane, qui est disposée opposée audit séparateur de film (67) afin de supporter les sections successives de ladite amorce de film (35) pratiquement plate à mesure que ces sections se déplacent sur le séparateur.

