

Description

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to photographic cartridges, and more particularly to a cartridge holding a photosensitive web-roll wound on a spool core mounted for rotation inside the cartridge, said cartridge comprising a mechanical rotation sensing mechanism for sensing incremental rotation of said spool and said web-roll.

Description of the Prior Art

Such sensing mechanisms for sensing web-roll rotation, or web transport, are well known in the prior art, as indicated in U. S. Patents No. 3,564,219, No. 3,730,453, No. 3,779,483, No. 3,917,142, No. 4,153,361, and JP-A-59 192 235.

Most of those patents utilize some type of sensing mechanism wherein pulses are generated for indicating a rotational velocity of the web spool. The pulses are fed to a counter, where they are accumulated, stored, and displayed to indicate the amount of web material remaining on the spool.

One problem with the prior-art sensing mechanisms is that, mechanically, they are of relatively complicated construction, which adversely affects the reliability and cost of such mechanisms. Another disadvantage of such mechanisms is that the web-roll cartridge normally interfaces with a printer or the like, and the optical-mechanical features of the mechanisms are normally mounted in the interfacing structure and not within the cartridge. That necessitates a larger and more complicated interfacing structure. The optical-mechanical rotation sensing mechanism of this invention is believed to eliminate these and other disadvantages of the known prior art.

SUMMARY OF THE INVENTION

The present invention relates to a cartridge as defined in Claim 1.

In another feature of the invention, the flange has a circular lip, and the coupling means comprises a unitary member having a flange lip follower and a flag support portion connected to the flag. The flange lip follower is pivotably movable within the cartridge. The unitary member has an integral torsion spring for biasing the flange lip follower toward the flange lip and the flag toward its second position. The flag support portion and flag extend into and through an opening in a wall of the cartridge. The unitary member further has a light-shield hood for light-shielding the interior of the cartridge from the flag support portion and opening.

In a more specific feature of the invention, the

flag support portion comprises a rib with an integral bearing surface and an arm connecting the rib to the flag. The cartridge has a wall having a projecting boss with an opening extending through the boss and wall for receiving the flag and flag arm, and for rotatably supporting the rib bearing surface. The light-shield hood is cup-shaped and encloses the opening and boss. The cup-shaped hood has inner surfaces extending over outer surfaces of the boss for optimum light shielding integrity.

In still another specific feature of the invention, the flange activating means comprises angularly spaced notches in the circular lip, and the flange lip follower is mounted in alignment with the notches. The flange lip follower comprises a ramp having an inclined surface terminating in a shoulder. In the forward direction of rotation of the web-roll for withdrawing web from the cartridge, the ramp rides on the flange and enters each of the notches, and is cammed out of each notch by the trailing edge of the notch riding on the inclined surface of the ramp. In the reverse direction of rotation of the web-roll, the ramp shoulder engages the leading edge of the first notch it encounters for preventing further reverse rotation of the web-roll, thereby functioning as an anti-rewind mechanism.

The invention and its objects and advantages will become more apparent from the detailed description of the preferred embodiment presented below.

BRIEF DESCRIPTION OF THE DRAWINGS

In the detailed description of the preferred embodiment of this invention presented below, reference is made to the accompanying drawings, in which:

Fig. 1 is a side elevational view, in section, of a cartridge and web-roll of the type in which a preferred embodiment of an optical-mechanical rotation sensing mechanism of this invention is embodied;

Fig. 2 is a perspective view of a portion of the lower cartridge housing with the web-roll removed for showing portions of the optical-mechanical rotation sensing mechanism;

Fig. 3 is a segmental enlarged portion of the cartridge housing of Fig. 2 for supporting the optical-mechanical sensing mechanism;

Fig. 4 is an enlarged segmental perspective view similar to Fig. 2;

Fig. 5 is a segmental enlarged rear perspective view of the flange follower, flag, and means for coupling the flange follower to the flag;

Fig. 6 is an enlarged sectional view, taken substantially along line 6-6 of Fig. 4, showing the flag in its first position; and

Fig. 7 is an enlarged sectional view, similar to Fig. 6, showing the flag in its second position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Because certain parts of photographic cartridges and interfacing apparatus are well known, the following description is directed in particular to those elements forming, cooperating directly with, or relating to the present invention. Elements not specifically shown or described herein are selectable from those known in the pertinent art.

Illustrated in Figs. 1 and 2 is a cartridge 10 of the type suitable for supplying a computer output micro-filmer or the like, not shown, with long web-rolls 12 of web material 11, such as 105mm-wide film. The cartridge 10 typically comprises a pair of cartridge housings 14, 16 having side walls 18, one of which is clearly seen in Fig. 2, provided with matching semi-circular journals, not shown, for rotatably supporting cylindrical bearings, not shown, on a pair of identical flanges 20 of the web-roll, only one of which is shown in part. The cartridge housings 14, 16 are sealed together along mating rims 22, 24 for enclosing the web-roll 12. Housings 14, 16 define a nose portion 26 provided with an exit slot 28 through which the web 11 is withdrawn from the cartridge. The nose portion 26 has opposed inner surfaces defining the exit slot 28 to which plush or foam material strips 30, 32 are applied to prevent light from entering the cartridge interior.

The web-roll 12 comprises a web-spool onto which the long web 11 of film or paper is wound. The web-spool comprises a cylindrical core 34 (Fig. 1) having core ends, not shown, to which the pair of flanges 20 are attached or secured. Generally, for the type of cartridge described in reference to this invention, the web 11 is initially wound onto the core 34, the flanges 20 are attached to the core ends to form a web-roll 12, the web-roll is placed in one of the cartridge housings 14, 16, and the other cartridge housing is secured to the one housing for enclosing the web-roll.

With reference to Figs. 2-4, the cartridge housing structure for supporting and accommodating the optical-mechanical rotation sensing mechanism of this invention will be described. Extending upwardly from the inner surface of the cartridge floor 36 are aligned interconnected projections comprising a roof-shaped projection 38, semi-cylindrical projections 40, 41, and a generally trapezoidal box-shaped projection 42. The projections form an integral cavity 44 on the outer surface of the cartridge floor 36 within which is situated a spaced light source and photodetector pair 46 or the like, only one of which is schematically shown in Fig. 2, for projecting a beam of light "L" therebetween. The other of said pair of elements is situated outside of, and adjacent to, cartridge wall 18. The box-shaped projection 42 (Fig. 3) further has a boss 48 at one end having a rectangular opening 50 extending therethrough into the cavity 44 for a purpose to be ex-

plained hereinafter.

Referring to Figs. 2 and 4-7, the mechanical mechanism for coupling the flange activating means to a flag 52 will be described in detail. The flange activating means comprises angularly spaced notches 54 on peripheral lip 56 of the flange. A flag support portion comprises an arm 58 having one end thereof secured to the flag 52 and its opposite end secured to a rib 60. The flag 52 is movable between a first position, in which the beam of light "L" is interrupted, and a second position in which the beam of light is uninterrupted. The coupling means for coupling the notches 54 to the flag 52 comprises a unitary member having a flange lip follower or ramp 62 at one end thereof, a light-shield hood 64 integrally connected thereto, and a torsion spring bar 66 having one end integral with the light-shield hood 64 and its opposite end 71 secured by any suitable means to the inner surface of the cartridge floor 36. The rib 60 of the flag support portion is integral with the undersurface of the light-shield hood 64. In Figs. 2 and 4, the torsion spring bar 66 biases the flange lip follower ramp 62 and flag support arm 58 and rib 60 in a counterclockwise direction.

With reference to Figs. 3-5, the coupling means is mounted on the floor 36 of the cartridge by initially rotating the coupling means and flag support portion of Fig. 5 in a clockwise direction through approximately 120° and inserting the flag 52, flag support arm 58, and rib 60 through the cartridge floor opening 50 until the rib 60 at one end of the flag support arm nests within the opening with the rib integral bearing surface 61 rotatably supported by rib bearing support surface 73. The opposite end 71 of the torsion bar 66 is then secured by any suitable means to the inner floor surface 36 of the cartridge. In this mounted position (Figs. 2 and 4), the inner surfaces 72 of the light-shield hood 64 overlap outer surfaces 74 of the boss 48 to provide light integrity so that no light from the environment or beam "L" will penetrate into the interior of the cartridge 10. The flange follower 62 further has an integral leg 76 extending outwardly therefrom, as best seen in Fig. 5, having an end thereof which is engageable with the outer surface of the circular lip 56 on the flange 20 to limit the counterclockwise movement (as viewed in Fig. 4) of the flange follower ramp 62, and thereby control the depth of penetration of the flange follower ramp into the notches 54.

With reference to Figs. 6 and 7, the operation of the optical-mechanical rotation sensing mechanism will now be described. Let us assume that a cartridge 10 containing a web-roll 12 is mounted in an interfacing mechanism such as a printer, not shown. Let us further assume that a printer web accumulator, not shown, is running low and that it actuates a photocell, not shown, which in turn actuates a stepping motor, not shown, for advancing a fixed length of web from the web-roll. As the web is advanced, the flange 20 rotates with the lip follower ramp 62 in engagement

with the lip 56, as best seen in Fig. 6. During this period, the flag 52 is in a position intercepting or interrupting the beam of light "L" in the cartridge cavity 44. When the web is advanced sufficiently to cause the lip follower ramp 62, under the bias of the torsion bar 66, to enter a notch 54, as seen in Fig. 7, the flag 52 is lifted out of the path of the light beam "L", which is now uninterrupted. When this occurs, the photodetector 46 will change its output-signal level, which is fed to a microprocessor. A comparison of photodetector output-signal-level changes so caused by rotation of web-roll 12, on one hand, with stepping-motor pulses, on the other hand, may then be used to determine the quantity of web 11 remaining on the web-roll. A further benefit of this rotation sensing mechanism results when the lip follower ramp 62 enters a notch 54, since any attempt to reverse the rotation of web-roll 12, which might inadvertently retract the web 11 into the cartridge, is prevented by the leading edge 78 of the notch engaging a shoulder 80 on the lip follower ramp 62.

This invention has been described in detail with particular reference to a preferred embodiment thereof, but it will be understood that variations and modifications can be effected within the scope of this invention as defined by the following claims.

Claims

1. A cartridge (10) comprising a spool core (34) mounted for rotation inside the cartridge for holding a photosensitive web-roll (12) wound on the spool core (34) and an optical-mechanical rotation sensing mechanism for sensing incremental rotation of said spool core (34) and said web-roll (12), said optical-mechanical rotation sensing mechanism comprising:

- actuating means (54, 56) arranged on a flange (20) of the spool core (34) for rotation with said flange;
- coupling means (60, 62);
- responding means (52) coupled to said actuating means (54, 56) through said coupling means (60, 62); and
- optical sensing means (46) disposed on an outer surface of the cartridge for sensing incremental rotation of the flange (20) and the web-roll (12) by means of a beam of light (L) affected by said rotation;

characterized in that:

said responding means comprises a flag (52) movably mounted on the cartridge for movement between a first position, in which the beam of light (L) is interrupted, and a second position, in which the beam of light (L) is uninterrupted, said coupling means (60, 62) being mounted on the cartridge (10) for coupling said actuating means

(54, 56) to said flag (52) for intermittently moving said flag (52) between said first and said second position.

2. A cartridge according to Claim 1 wherein the flange (20) has a circular lip (56), and wherein the coupling means (58-71) comprises a unitary member (58-71) having a flange lip follower (62) and a flag support portion (58, 60) connected to the flag (52).
3. A cartridge according to Claim 2 wherein the flange lip follower (62) is pivotably movable within the cartridge (10), wherein the unitary member (58-71) further has a spring (66, 71) for biasing the flange lip follower (62) toward the flange lip (56) and the flag (52) toward its second position (Fig. 7), wherein the flag support portion (58, 60) and flag (52) extend through an opening (50) in a wall (48) of the cartridge (10), and wherein the unitary member (58-71) further has a light-shield hood (64) for light-shielding the cartridge (10) interior from the flag support portion (58, 60) and the opening (50).
4. A cartridge according to Claim 3 wherein the spring (66, 71) comprises a torsion bar (66) having one end (71) connected to the cartridge (10) and its opposite end connected to the light-shield hood (64).
5. A cartridge according to Claim 4 wherein the flag support portion (58, 60) comprises a rib (60) secured to the light-shield hood (64) and an arm (58) connecting the rib (60) to the flag (52), wherein the cartridge (10) has a wall (42) having a projecting boss (48), wherein the opening (50) extends through the boss (48) and the wall (42) for receiving the rib (60), which nests rotatably therein, and wherein the light-shield hood (64) is a cup-shaped hood (64) enclosing the opening (50) and boss (48).
6. A cartridge according to Claim 5 wherein the light-shield cup-shaped hood (64) has inner surfaces (72) overlapping outer surfaces (74) of the boss (48).
7. A cartridge according to Claim 6 wherein the actuating means (54, 56) comprises angularly spaced notches (54) in the circular flange lip (56), and wherein the flange lip follower (62) comprises a ramp (62) disposed for alignment with the notches (54).
8. A cartridge according to Claim 7 wherein the flange lip follower ramp (62) has an inclined surface terminating in a shoulder (80) and disposed

with the lip 56, as best seen in Fig. 6. During this period, the flag 52 is in a position intercepting or interrupting the beam of light "L" in the cartridge cavity 44. When the web is advanced sufficiently to cause the lip follower ramp 62, under the bias of the torsion bar 66, to enter a notch 54, as seen in Fig. 7, the flag 52 is lifted out of the path of the light beam "L", which is now uninterrupted. When this occurs, the photodetector 46 will change its output-signal level, which is fed to a microprocessor. A comparison of photodetector output-signal-level changes so caused by rotation of web-roll 12, on one hand, with stepping-motor pulses, on the other hand, may then be used to determine the quantity of web 11 remaining on the web-roll. A further benefit of this rotation sensing mechanism results when the lip follower ramp 62 enters a notch 54, since any attempt to reverse the rotation of web-roll 12, which might inadvertently retract the web 11 into the cartridge, is prevented by the leading edge 78 of the notch engaging a shoulder 80 on the lip follower ramp 62.

This invention has been described in detail with particular reference to a preferred embodiment thereof, but it will be understood that variations and modifications can be effected within the scope of this invention as defined by the following claims.

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- actuating means (54, 56) arranged on a flange (20) of the spool core (34) for rotation with said flange;
- coupling means (60, 62);
- responding means (52) coupled to said actuating means (54, 56) through said coupling means (60, 62); and
- optical sensing means (46) disposed on an outer surface of the cartridge for sensing incremental rotation of the flange (20) and the web-roll (12) by means of a beam of light (L) affected by said rotation;

characterized in that:

said responding means comprises a flag (52) movably mounted on the cartridge for movement between a first position, in which the beam of light (L) is interrupted, and a second position, in which the beam of light (L) is uninterrupted, said coupling means (60, 62) being mounted on the cartridge (10) for coupling said actuating means

(54, 56) to said flag (52) for intermittently moving said flag (52) between said first and said second position.

2. A cartridge according to Claim 1 wherein the flange (20) has a circular lip (56), and wherein the coupling means (58-71) comprises a unitary member (58-71) having a flange lip follower (62) and a flag support portion (58, 60) connected to the flag (52).
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4. A cartridge according to Claim 3 wherein the spring (66, 71) comprises a torsion bar (66) having one end (71) connected to the cartridge (10) and its opposite end connected to the light-shield hood (64).
5. A cartridge according to Claim 4 wherein the flag support portion (58, 60) comprises a rib (60) secured to the light-shield hood (64) and an arm (58) connecting the rib (60) to the flag (52), wherein the cartridge (10) has a wall (42) having a projecting boss (48), wherein the opening (50) extends through the boss (48) and the wall (42) for receiving the rib (60), which nests rotatably therein, and wherein the light-shield hood (64) is a cup-shaped hood (64) enclosing the opening (50) and boss (48).
6. A cartridge according to Claim 5 wherein the light-shield cup-shaped hood (64) has inner surfaces (72) overlapping outer surfaces (74) of the boss (48).
7. A cartridge according to Claim 6 wherein the actuating means (54, 56) comprises angularly spaced notches (54) in the circular flange lip (56), and wherein the flange lip follower (62) comprises a ramp (62) disposed for alignment with the notches (54).
8. A cartridge according to Claim 7 wherein the flange lip follower ramp (62) has an inclined surface terminating in a shoulder (80) and disposed



for engagement with the flange lip (56); wherein, in a forward direction of rotation of the web-roll (12) corresponding to withdrawal of web material (11) thereon from the cartridge (10), the follower ramp (62) rides on the flange lip (56), successively enters the notches (54) therein, and is cammed out of each entered notch (54) by an edge thereof riding on the ramp inclined surface; and wherein, in a reverse direction of rotation of the web-roll (12) corresponding to retraction of withdrawn web material (11), an opposing edge (78) of an entered notch (54) engages the ramp shoulder (80) to prevent further rotation of the web-roll (12) in the reverse direction.

Patentansprüche

1. Kassette (10) mit einem Spulenkern (34), der drehbar innerhalb der Kassette montiert ist, um ein aufgewickeltes lichtempfindliches Band (12) zu halten, das auf den Spulenkern (34) aufgewickelt ist, und einem optisch-mechanischen Rotationssensor zum Erfassen inkrementaler Rotation des Spulenkerns (34) und des aufgewickelten Bandes (12), wobei der optisch-mechanische Rotationssensor umfaßt:
 - eine Betätigungseinrichtung (54, 56), die auf einem Flansch (20) des Spulenkerns (34) zur Drehung mit dem Flansch angeordnet ist;
 - eine Kupplungseinrichtung (60, 62);
 - eine Ansprechrichtung (52), die mit der Betätigungseinrichtung (54, 56) durch die Kupplungseinrichtung (60, 62) gekoppelt ist; und
 - eine optische Sensoreinrichtung (46), die auf einer Außenfläche der Kassette zum Erfassen inkrementaler Rotation des Flansches (20) und des aufgewickelten Bandes (12) mittels eines Lichtstrahls (L), der von der Rotation beeinflusst wird, angeordnet ist;
 dadurch gekennzeichnet, daß die Ansprechrichtung einen Lichtabdeckschirm (52) umfaßt, der bewegbar an der Kassette montiert ist zur Bewegung zwischen einer ersten Stellung, in der der Lichtstrahl (L) unterbrochen ist, und einer zweiten Stellung, in der der Lichtstrahl (L) nicht unterbrochen ist, wobei die Kupplungseinrichtung (60, 62) an der Kassette (10) montiert ist, um die Betätigungseinrichtung (54, 56) mit dem Lichtabdeckschirm (52) zu koppeln, um den Lichtabdeckschirm (52) intermittierend zwischen der ersten und der zweiten Stellung zu bewegen.

2. Kassette nach Anspruch 1, wobei der Flansch

(20) eine kreisförmige Lippe (56) aufweist und wobei die Kupplungseinrichtung (58-71) ein einteiliges Element (58-71) aufweist, das über einen Flanschlippenfolger (62) und einen mit dem Lichtabdeckschirm (52) verbundenen Lichtabdeckschirmstützabschnitt (58, 60) verfügt.

3. Kassette nach Anspruch 2, wobei der Flanschlippenfolger (62) innerhalb der Kassette (10) schwenkbar bewegbar ist, wobei das einteilige Element (58-71) weiterhin eine Feder (66, 71) zum Vorspannen des Flanschlippenfolgers (62) zur Flanschlippe (56) hin und des Lichtabdeckschirms (52) zu seiner zweiten Stellung (Fig. 7) hin aufweist, wobei der Lichtabdeckschirmstützabschnitt (58, 60) und der Lichtabdeckschirm (52) durch eine Öffnung (50) in einer Wand (48) der Kassette (10) verlaufen und wobei das einteilige Element (58-71) weiterhin eine Lichtschutzhaube (64) zum Lichtschutz für das Innere der Kassette (10) gegenüber dem Lichtabdeckschirmstützabschnitt (58, 60) und der Öffnung (50) aufweist.
4. Kassette nach Anspruch 3, wobei die Feder (66, 71) einen Torsionsstab (66) aufweist, dessen eines Ende (71) mit der Kassette (10) und dessen gegenüberliegendes Ende mit der Lichtschutzhaube (64) verbunden ist.
5. Kassette nach Anspruch 4, wobei der Lichtabdeckschirmstützabschnitt (58, 60) eine an der Lichtschutzhaube (64) befestigte Rippe (60) und einen Arm (58) aufweist, der die Rippe (60) mit dem Lichtabdeckschirm (52) verbindet, wobei die Kassette (10) über eine Wand (42) mit einem vorstehenden Auge (48) verfügt, wobei die Öffnung (50) durch das Auge (48) und die Wand (42) verläuft, um die Rippe (60) aufzunehmen, die drehbar darin ruht, und wobei die Lichtschutzhaube (64) eine tassenförmige Haube (64) ist, die die Öffnung (50) und das Auge (48) umschließt.
6. Kassette nach Anspruch 5, wobei die tassenförmige Lichtschutzhaube (64) innere Oberflächen (72) aufweist, die die äußeren Oberflächen (74) des Auges (48) überlappt.
7. Kassette nach Anspruch 6, wobei die Betätigungseinrichtung (54, 56) in Umfangsrichtung beabstandete Nuten (54) in der kreisförmigen Flanschlippe (56) aufweist und wobei der Flanschlippenfolger (62) eine in Ausrichtung mit den Nuten (54) angeordnete Rampe (62) aufweist.
8. Kassette nach Anspruch 7, wobei die Flanschlippenfolgerrampe (62) eine geneigte Oberfläche



aufweist, die in einer Schulter (80) endet und zum Eingriff mit der Flanschlippe (56) angeordnet ist; wobei bei einer Rotation des aufgewickelten Bandes (12) in einer Vorwärtsrichtung, entsprechend dem Abziehen des Bandmaterials (11) darauf aus der Kassette (10), die Folgerampe (62) auf der Flanschlippe (56) gleitet, sukzessiv in die Nuten (54) darin eintritt und aus jeder Nut (54), in die sie eingetreten ist, herausgeschoben wird, indem eine Kante hiervon auf der geneigten Oberfläche der Rampe gleitet; und wobei bei einer Rotation des aufgewickelten Bandes (12) in einer Rückwärtsrichtung, entsprechend dem Zurückziehen des abgezogenen Bandmaterials (11), eine gegenüberliegende Kante (78) der in Eingriff befindlichen Nut (54) mit der Rampenschulter (80) in Eingriff gelangt um eine weitere Rotation des aufgewickelten Bandes (12) in Rückwärtsrichtung zu verhindern.

Revendications

1. Cartouche (10) comprenant un noyau (34) de bobine monté afin qu'il tourne à l'intérieur de la cartouche et supporte un rouleau (12) d'une bande photosensible enroulée sur le noyau (34) de la bobine et un mécanisme de détection de rotation, de type optique et mécanique, destiné à détecter une rotation par incréments du noyau (34) de la bobine et du rouleau (12) de la bande, le mécanisme de détection de rotation de type optique et mécanique comprenant ;

- des moyens de commande (54, 56) placés sur un flasque (20) du noyau (34) de la bobine et destinés à tourner avec le flasque ;
- des moyens d'accouplement (60, 62) ;
- des moyens (52) de réponse couplés aux moyens de commande (54, 56) par les moyens d'accouplement (60, 62) ; et
- des moyens optiques (46) de détection placés sur une surface externe de la cartouche et destinés à détecter une rotation par incréments du flasque (20) et du rouleau (12) de la bande à l'aide d'un faisceau lumineux (L) affecté par cette rotation, caractérisée en ce que :
- les moyens de réponse comportant un indicateur (52) monté afin qu'il soit mobile sur la cartouche et qu'il se déplace entre une première position dans laquelle le faisceau lumineux (L) est interrompu et une seconde position dans laquelle le faisceau lumineux (L) n'est pas interrompu, les moyens d'accouplement (60, 62) étant montés sur la cartouche (10) pour l'accouplement des moyens de commande (54, 56) à l'indicateur (52) et assurant un déplacement inter-

mittent de l'indicateur (52) entre la première et la seconde position.

2. Cartouche selon la revendication 1, dans laquelle le flasque (20) a une lèvre circulaire (56), et les moyens d'accouplement (58 à 71) comprennent un organe en une seule pièce (58 à 71) ayant un organe (62) destiné à suivre la lèvre du flasque suiveur et une partie (58, 60) de support de l'indicateur qui est raccordée à l'indicateur (52).
3. Cartouche selon la revendication 2, dans laquelle l'organe (62) destiné à suivre la lèvre du flasque est mobile par pivotement à l'intérieur de la cartouche (10), et l'organe en une seule pièce (58 à 71) possède en outre un ressort (66, 71) de rappel du suiveur (62) vers la lèvre (56) du flasque et de l'indicateur (52) vers sa seconde position (figure 7), dans laquelle la partie (58, 60) de support de l'indicateur et le drapeau (52) passent par une ouverture (50) d'une paroi (48) de la cartouche (10), et l'organe en une seule pièce (58 à 71) possède en outre un capot (64) de protection contre la lumière de l'intérieur de la cartouche (10) à la partie (58, 60) de support de l'indicateur et à l'ouverture (50).
4. Cartouche selon la revendication 3, dans laquelle le ressort (66, 71) est une barre de torsion (66) dont une première extrémité (71) est raccordée à la cartouche (10) et l'extrémité opposée est raccordée au capot (64) de protection contre la lumière.
5. Cartouche selon la revendication 4, dans laquelle la partie (58, 60) de support de l'indicateur comporte une nervure (60) fixée au capot (64) de protection contre la lumière et un bras (58) raccordant la nervure (60) à l'indicateur (52), dans laquelle la cartouche (10) possède une paroi (42) ayant un bossage en saillie (48), une ouverture (50) traversant le bossage (48) et la paroi (42) pour le logement de la nervure (60) qui peut tourner dans l'ouverture, et dans laquelle le capot (64) de protection contre la lumière est un capot (64) en forme de cuvette entourant l'ouverture (50) et le bossage (48).
6. Cartouche selon la revendication 5, dans laquelle le capot (64) en forme de cuvette assurant la protection contre la lumière a des surfaces internes (72) qui recouvrent les surfaces externes (74) du bossage (48).
7. Cartouche selon la revendication 6, dans laquelle les moyens de commande (54, 56) comprennent des encoches (54) espacées angulairement dans la lèvre circulaire (56) du flasque, et dans laquelle



le suiveur (62) de la lèvre du flasque comporte une rampe (62) destinée à être alignée sur les encoches (54).

8. Cartouche selon la revendication 7, dans laquelle le suiveur (62) a une surface inclinée aboutissant à un épaulement (80) et destinée à coopérer avec la lèvre (56) du flasque, dans laquelle, dans le sens de rotation du rouleau (12) de bande vers l'avant correspondant à l'extraction du matériau en bande (11) de la cartouche (10), la rampe (62) du suiveur se déplace sur la lèvre (56) du flasque, pénètre successivement dans les encoches (54) de cette lèvre, et est chassée par effet de came de chaque encoche (54) dans laquelle elle est entrée, par passage d'un bord sur la surface inclinée de rampe, et dans laquelle, dans le sens inverse de rotation du rouleau (12) de bande correspondant au recul de la matière (11) de bande qui est retirée, un bord opposé (78) d'une encoche (54) dans laquelle est entrée la rampe est au contact de l'épaulement (80) de rampe pour empêcher une rotation supplémentaire du rouleau (12) dans le sens inverse.

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