

Description

Reference is made to the following related publications:

1. International Publication No. WO 90/04202, entitled CAMERA APPARATUS FOR MAGNETICALLY RECORDING ON FILM, published April 19, 1990, in the name of Richard R. Kelbe.
2. International Publication No. WO 90/04201, entitled CAMERA APPARATUS FOR MAGNETICALLY RECORDING ON FILM, published April 19, 1990, in the names of Michael L. Wash and Conrad Diehl.
3. U.S. Patent No. 4,996,546, entitled CAMERA APPARATUS FOR MAGNETICALLY RECORDING ON FILM, granted February 2, 1991, in the names of Daniel M. Pagano and Robert P. Cloutier.
4. International Publication No. WO 90/04214, entitled FILM INFORMATION EXCHANGE SYSTEM USING DEDICATED MAGNETIC TRACKS ON FILM, published April 19, 1990, in the name of Robert P. Cloutier et al.
5. U.S. Patent No. 4,855,773, entitled MOTOR-DRIVEN FILM TRANSPORT APPARATUS, granted August 8, 1989, in the name of Donald M. Harvey.
6. International Publication No. WO 89/12894, entitled THREE PART DECODER CIRCUIT, published December 28, 1989, in the name of Michael L. Wash.
7. U.S. Patent No. 4,912,467, entitled THREE PART ENCODER CIRCUIT, granted March 27, 1990, in the names of Arthur Whitfield and Michael L. Wash.
8. U.S. Patent No. 4,876,697, entitled THREE PART DECODER CIRCUIT, granted October 24, 1989, in the name of Arthur Whitfield.
9. International Publication No. WO 89/12892, entitled METHOD FOR MODULATING A BINARY DATA STREAM, published December 28, 1989, in the name of Michael L. Wash.
10. U.S. Patent No. 4,878,075, entitled CAMERA APPARATUS FOR PREVENTING DOUBLE EXPOSURE, granted October 31, 1989, in the name of James W. Cannon.

TECHNICAL FIELD

This invention relates to magnetic recording apparatus for cameras and more particularly, to magnetic recording apparatus for photographic still cameras.

BACKGROUND ART

In International Publication WO 90/04214, cross referenced above, there is disclosed a photograph-

ic film having a virtually transparent magnetic coating covering the non-emulsion side of the film and dedicated recording areas on the coating for recording information such as film type, film speed, film exposure information and information relevant to the processing and subsequent use (e.g. printing) of the film. The system thus provides for recording of information during film manufacture, reading and/or recording of information during camera use, and reading and/or recording of printing related information during photofinishing. In the aforementioned copending application it is specifically proposed that camera information be recorded in spaced tracks preferably outside the image area along the edge of the film.

US-A-4,270,853 discloses an instant-printing camera for receiving a film pack case including an instant-printing film having a magnetic sound-recording band on one end part, said camera comprising a sweeping magnetic head that sweeps touching and along the magnetic sound-recording band and thereby enables recording of ambient sound of the photographic scenery, or reproducing of the recorded sound while seeing the instant-printed photography.

Reading and writing information on a magnetic coating or stripe on photographic film in a still camera requires solutions to problems different than those encountered in other apparatus. Perhaps the most significant problem is the space limitations in a portable hand held still camera which necessarily must be as compact and light as possible to appeal to the average consumer. Perhaps equally significant, however, is the characteristics of photographic film relative to more common recording mediums such as magnetic tape. Because photographic films are stiffer than magnetic tape and have varying degrees of curl both in the longitudinal and transverse directions depending upon the base materials and number and nature of sensitizing layers and environmental conditions, they present unusual problems in reading and writing information on a magnetic coating or stripe. To provide a reliable read or write signal the magnetic head must remain in close proximity to the magnetic coating. Any disturbances such as variations in film curl can vary the relationship of the head to the coating and decrease the reliability of the signal.

Another problem unique to compact photographic still cameras is that film advance occurs in a short period of time with a limited amount of motion and does not allow the steady state conditions normally associated with magnetic recording. Recording and playback must take place during transient conditions which tend to separate the film from the recording head. For optimum magnetic recording during these conditions, the mag-

netic head must maintain contact, i.e. within .254 μm (10 micro-inches) with the magnetic coating.

Techniques for maintaining the desired relationship of the head to a magnetic coating in other apparatus, are not practical for use in a photographic still camera particularly a compact 35mm camera. For example, in a sound movie camera, a film having a magnetic stripe along one edge is typically moved over a drum and information is recorded by a magnetic head positioned in close proximity to the drum. The drum provides a rigid support for the film, removes film curl and assures a uniform head to film relationship. While a fixed support such as a sound drum produces satisfactory results, the space limitations in a photographic still camera render it impractical. Also, it is not suitable for the transient conditions described above.

Also, in a still camera system, it is desirable to record information pertinent to and coincident with images because negatives are cut up in photofinishing. In sound movie cameras, recorded information is displaced from the image to achieve continuous motion of the film during recording as compared with intermittent motion during exposure.

The prior art relating to recording on photographic film thus generally teaches providing a support for the recording medium on the side opposite from the recording head and continuous motion of the recording medium to ensure reliable recording.

DISCLOSURE OF THE INVENTION

In accordance with the invention a photographic still camera and a film cartridge are defined by claims 1 and 5. The magnetic recording in a photographic still camera is achieved in a simple, reliable manner by providing an opening in a film cartridge lip in which a magnetic head supported by a flexure means is received. Portions of the lip and light sealing material within the lip provide a compliant support for the head and control for transient film curl to insure reliable magnetic coupling between the head and magnetic surface of the film.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings wherein:

FIG. 1 is a cross section of a portion of a conventional photographic still camera illustrating a magnetic recording apparatus in accordance with the invention;

FIG. 2 is a perspective view of the back or door for the camera illustrated in FIG. 1;

FIG. 3 is a cross section taken perpendicular to the section shown in FIG. 1;

FIG. 4 is an enlarged cross section of the film cartridge shown in FIG. 1 illustrating the head mounting;

FIG. 5 is an enlarged top view of the film cartridge shown in FIG. 1 with the film partially withdrawn;

FIGS. 6A and 6B are perspective views showing cartridge variations;

FIG. 7 is an enlarged top view of the head and flexure assembly;

FIG. 8 is an end view of the apparatus shown in FIG. 7; and

FIG. 9 is a side view of the apparatus shown in FIG. 7.

BEST MODE OF CARRYING OUT THE INVENTION

Referring to FIGS. 1, 2 and 3 of the drawings, there is shown a portion of a typical photographic still camera 6 having a back or rear door 8 (FIG. 2) pivotal to an open position by means of a pair of pins 10 one of which is shown in FIG. 2. The pins 10 are received in holes in frame 12. Since such cameras are well known in the art, features not necessary for an understanding of the present invention have been omitted or shown in block diagram to simplify the disclosure.

The camera 6 comprises a frame or housing 12 having a chamber 14 at one end thereof for receiving a film cartridge 16. The cartridge 16 which is shown more clearly in FIGS. 4 and 5, preferably takes the form of the film cartridge disclosed in the US-A-4,855,773 having a lip 18 from which a film 20 is removed for exposure. The film 20 is provided with a transparent magnetic coating 21 on its non-emulsion side, a single row of perforations (p) along one edge and dedicated longitudinal recording areas (r) along the edges outside the image area (i). As disclosed in WO 90/04214 the areas 23 would be dedicated areas for recording information in the camera, the image area being dedicated to the recording of photofinishing information.

It will be apparent, however, that the recording apparatus disclosed herein is equally applicable to magnetic coatings or stripes on conventional 35mm film, and that the camera apparatus disclosed herein can alternatively be a conventional 35mm camera such as the commercially available KODAK K-14 Medalist VR 35 camera.

As shown in FIG. 4, the lip 18 comprises upper and lower spaced flanges (a) and (b) which serve to clamp upper and lower pieces of plush material

(c) and (d) to opposite sides of the film.

As is well known in the art, the surfaces of cartridge 16 and lip 18 engage complimentary surfaces of the chamber 14 and the camera back whereby when the camera back is closed, the cartridge is fixedly held in the orientation shown in FIG. 1. Since such camera and cartridge interface features are well known in the art, further description is deemed unnecessary.

From the lip 18, the film 20 is transported across a rectangular exposure opening 22 aligned with a taking lens 23 to a film take-up chamber 24 where it is wound on a take-up spool 26. Mechanisms for accomplishing such film transport are well known in the art. Typically, they operate to advance the film frame by frame from the cartridge to the take-up spool, or if the camera exposes during rewind, frame by frame from the take-up spool to the cartridge.

A pair of film rails 28 are formed on opposite sides of the rectangular exposure opening 22 to engage the longitudinal edges of the film. The film 20 is urged toward the rails 28 by a platen 30 mounted on a leaf spring 32 on the camera back 8. The platen 30 comprises a flat rectangular plate having planar dimensions complimentary to the rectangular exposure opening 22 whereby upon closure of the back, platen 30 will engage platen support surfaces 34, engage the film 20 and urge it with slight pressure toward rails 28 under the influence of spring 32 as shown more clearly in FIG. 3. The platen 30 will tend to remove longitudinal curl resulting from film core set in the cartridge 16 and some of the transverse curl across the film. However, since the film is unsupported transversely on its emulsion side, some transverse curl still exists during film exposure as indicated in FIG. 3 at areas (e) but not enough to noticeably degrade the image.

In a typical still camera, the spacing between the platen 20 and the rails 28 is in the range of .25-.45 mm as a result of manufacturing tolerances. The photographic film used in such a camera is typically .15 mm thick. Accordingly, as shown in FIG. 3, the film may not actually engage the rails. Due to the transverse film curl, the extreme edges of the film may actually engage the camera surfaces (f) on the other side of the rails with the curl bias causing most of the width of the film to engage the platen. Because of this result, the camera lens is typically focused on a film plane next to the platen.

FIG. 1 also depicts in a block diagram some of the more basic central features of cameras of the type described. Typically, a motorized film transport means 36 comprising a conventional bi-directional circuit 38 for reversing a drive motor 40, a drive transmission 42 and drive hubs 44 and 46

which engage the core of film cartridge 16 and the take-up spool 26 respectively, is provided for rotating the spool core and the take-up spool either in the unwinding or winding directions under the control of a micro computer 43.

Other elements of the camera include a conventional metering switch 46, a read/write circuit 48, a shutter release mechanism 49, a conventional digital frame counter 50 and a conventional timer 52. These components are all controlled from the micro computer 43 in a manner well known in the art and since they form no part of the present invention, further description is deemed unnecessary.

As mentioned above, magnetic recording in photographic still cameras involves unique problems. Film advance occurs in a short period of time with a limited amount of motion and does not allow the steady conditions normally associated with magnetic recording to be achieved. In view of these problems, the read/write circuit 48 preferably utilizes the encoding and decoding techniques disclosed in WO 89/12894; US-A-4,912,467; US-A-4,876,697, and the code format preferably takes the form of that disclosed in the referenced copending application WO 89/12892.

In accordance with the invention, the cartridge lip 18 is provided with a rectangular opening 59 in its upper flange (a) and the upper plush material (c) as illustrated most clearly in FIGS. 4 and 6A. A conventional magnetic read/write head 60 connected to the read/write circuit 48 is mounted on an elongated flexure 62 having a flange 63 attached at one end to the camera back 8 by, for example, cement. The head 60 extends through an opening 59 in the upper flange (a) and upper plush material (c) of lip 18 and is positioned so that when the camera back is closed as shown in FIG. 1, the head will engage the transparent magnetic coating of the film in the opening 59. The position of head 60 in the flexure 62 is adjusted so that when the camera back is closed the head will maintain slight contact, i.e. within .254 μm (10 micro-inches) with the magnetic coating of film 20 with a bias force in the range of 14 - 56 grams. While the flexure is disclosed as being mounted on the camera back, it will be obvious that it could be mounted on any movable part which engages the cartridge when it is loaded.

The lip 18 is sized and opening 59 in the upper lip (a) and upper plush material (c) is preferably located such that adequate plush material (c) remains on the supply chamber side of the opening to provide an adequate light seal as shown most clearly in FIG. 4. Also, it will be apparent that the opening 59 can be merely a rectangular recess extending to the end of the lip.

Referring specifically to FIG. 5, the flexure comprises a flexure arm 68 extending from the flange 63 along an axis perpendicular to the longitudinal film axis. The arm 68 carries at its movable end an integral rectangular flexure frame 70 which is connected to a head support 72 by two inwardly extending transverse flexures 74 and 76.

The arm 68 functions as a torsion system to permit tilting or roll of the assembly comprising head 60 and support 72 transversely of the longitudinal film axis to accommodate variations in transverse film curl described above. The flexures 74 and 76 form a second independent torsion system to permit tilting or pitching of the assembly comprising support 72 and head 60 in the longitudinal direction of the film to accommodate any disturbances in the longitudinal direction. The arm 68 will allow displacement of the head 60 in a vertical direction substantially perpendicular to the film as shown in FIG. 9 by the solid and dashed position of the flexure. The flexure 62 thus allows freedom of movement of the head 60 and its support 72 on three axis (roll, pitch and elevation). The pitch axis is the axis of flexure arms 74 and 76 and the roll axis is the longitudinal axis of flexure arm 68. The elevation axis is the axis of head 60.

The flexure 62 is somewhat similar in configuration to the twin arm flexures employed in floppy disc recorders. However, to accommodate the more extreme disturbances encountered with photographic film, the single flexure arm 68 is provided with more flexibility for permitting greater accommodation to roll and elevational movement. Flexures 74 and 76 are also relatively more flexible to retain the head in contact with the film during variations in longitudinal curl. Thus, the flexure has novel characteristics which enable it to accommodate the disturbances in a photographic film environment.

In operation, the lower flange (b) and the lower plush material (d) provide a compliant support for the film 20, the plush material providing the compliance and the flange (b) providing the support. This structure effectively provides a head to film interface outside of the image area of the camera in a space where the film is supported. Because existing cartridge parts are used to support the film, the magnetic recording apparatus utilizes little space within the camera.

FIG. 6B illustrates an additional embodiment of the cartridge for use with multiple heads. In this embodiment, the cartridge 16 is provided with an elongated opening 80 adapted to receive a plurality of heads each mounted in the same manner as head 60 or mounted on a single flexure of the type illustrated in FIG. 7. Alternatively, the cartridge 16 could be provided with multiple openings for multiple heads respectively.

To calibrate the system, the vertical position or elevation of the head 60 is initially adjusted in support 72 to establish a high head contact force on the film. This force is then reduced through adjustment of the head elevation until it has minimum contact force on the film to produce reliable recording and good playback. The other two degrees of freedom (pitch and roll) are relied on to maintain contact of the head with the film during film transport.

The disclosed embodiment of the invention achieves magnetic recording on conventional photographic film in a still camera by uniquely utilizing camera and cartridge parts. Since the only additional parts that need be added to a conventional camera to achieve magnetic recording comprise a magnetic head and flexure, the system possesses significant advantages from a cost standpoint. By mounting the head on the camera back and using the cartridge parts as a head support on the other side of the film from the head, the size of the camera is not increased. Thus the invention has significant advantages.

Another significant advantage of the flexural mounting of the recording head is that the inherent compliance permits the magnetic head to adjust to small transient disturbances and thus maintain the required head to film contact.

While the invention has been shown and described with reference to a preferred embodiment thereof, it will be apparent that various changes may be made without departing from the scope of the invention as defined by the appended claims.

Claims

1. A photographic still camera (6) adapted for receiving a film cartridge (16) having a lip (18) having a first opening for exiting film (20) and a second opening, said camera comprising a magnetic head (60) and means (62,63) for supporting said magnetic head, said camera being characterized in that

the magnetic head (60) is arranged to engage the film within the second opening of the cartridge lip (18); and by

a flexure means (68,70,74) for supporting said magnetic head (60).

2. A photographic still camera as set forth in Claim 1, characterized in that said flexure means (68,70,74) supports said head (60) for roll movement in direction transverse to the longitudinal axis of the film (20), pitching movement in a direction parallel to the longitudinal axis of the film and elevational movement substantially perpendicular to the film.



Referring specifically to FIG. 5, the flexure comprises a flexure arm 68 extending from the flange 63 along an axis perpendicular to the longitudinal film axis. The arm 68 carries at its movable end an integral rectangular flexure frame 70 which is connected to a head support 72 by two inwardly extending transverse flexures 74 and 76.

The arm 68 functions as a torsion system to permit tilting or roll of the assembly comprising head 60 and support 72 transversely of the longitudinal film axis to accommodate variations in transverse film curl described above. The flexures 74 and 76 form a second independent torsion system to permit tilting or pitching of the assembly comprising support 72 and head 60 in the longitudinal direction of the film to accommodate any disturbances in the longitudinal direction. The arm 68 will allow displacement of the head 60 in a vertical direction substantially perpendicular to the film as shown in FIG. 9 by the solid and dashed position of the flexure. The flexure 62 thus allows freedom of movement of the head 60 and its support 72 on three axis (roll, pitch and elevation). The pitch axis is the axis of flexure arms 74 and 76 and the roll axis is the longitudinal axis of flexure arm 68. The elevation axis is the axis of head 60.

The flexure 62 is somewhat similar in configuration to the twin arm flexures employed in floppy disc recorders. However, to accommodate the more extreme disturbances encountered with photographic film, the single flexure arm 68 is provided with more flexibility for permitting greater accommodation to roll and elevational movement. Flexures 74 and 76 are also relatively more flexible to retain the head in contact with the film during variations in longitudinal curl. Thus, the flexure has novel characteristics which enable it to accommodate the disturbances in a photographic film environment.

In operation, the lower flange (b) and the lower plush material (d) provide a compliant support for the film 20, the plush material providing the compliance and the flange (b) providing the support. This structure effectively provides a head to film interface outside of the image area of the camera in a space where the film is supported. Because existing cartridge parts are used to support the film, the magnetic recording apparatus utilizes little space within the camera.

FIG. 6B illustrates an additional embodiment of the cartridge for use with multiple heads. In this embodiment, the cartridge 16 is provided with an elongated opening 80 adapted to receive a plurality of heads each mounted in the same manner as head 60 or mounted on a single flexure of the type illustrated in FIG. 7. Alternatively, the cartridge 16 could be provided with multiple openings for multiple heads respectively.

To calibrate the system, the vertical position or elevation of the head 60 is initially adjusted in support 72 to establish a high head contact force on the film. This force is then reduced through adjustment of the head elevation until it has minimum contact force on the film to produce reliable recording and good playback. The other two degrees of freedom (pitch and roll) are relied on to maintain contact of the head with the film during film transport.

The disclosed embodiment of the invention achieves magnetic recording on conventional photographic film in a still camera by uniquely utilizing camera and cartridge parts. Since the only additional parts that need be added to a conventional camera to achieve magnetic recording comprise a magnetic head and flexure, the system possesses significant advantages from a cost standpoint. By mounting the head on the camera back and using the cartridge parts as a head support on the other side of the film from the head, the size of the camera is not increased. Thus the invention has significant advantages.

Another significant advantage of the flexural mounting of the recording head is that the inherent compliance permits the magnetic head to adjust to small transient disturbances and thus maintain the required head to film contact.

While the invention has been shown and described with reference to a preferred embodiment thereof, it will be apparent that various changes may be made without departing from the scope of the invention as defined by the appended claims.

Claims

1. A photographic still camera (6) adapted for receiving a film cartridge (16) having a lip (18) having a first opening for exiting film (20) and a second opening, said camera comprising a magnetic head (60) and means (62,63) for supporting said magnetic head, said camera being characterized in that

the magnetic head (60) is arranged to engage the film within the second opening of the cartridge lip (18); and by

a flexure means (68,70,74) for supporting said magnetic head (60).

2. A photographic still camera as set forth in Claim 1, characterized in that said flexure means (68,70,74) supports said head (60) for roll movement in direction transverse to the longitudinal axis of the film (20), pitching movement in a direction parallel to the longitudinal axis of the film and elevational movement substantially perpendicular to the film.

3. A photographic still camera as set forth in Claim 1 or 2, characterized in that said flexure means (68,70,74) having one end (63) attached to a rear door (8) of said camera and its other end (70) carrying said magnetic head (60).

4. A photographic still camera as set forth in Claim 1 characterized in that said cartridge (16) has an opening (59 or 80) in its lip (18) and said magnetic head (60) is received by said opening.

5. A photographic film cartridge (16) for use in a photographic camera (6) having a magnetic head (60) for recording information on the film (20), said cartridge comprising a container and a lip (18) on said container having a first opening for exiting film from said container, said cartridge being characterized by

a second opening (59 or 80) in said lip (18) for receiving the magnetic head (60) to permit said magnetic head to read and/or record information on the film (20) within said lip.

Patentansprüche

1. Fotografische Stehbildkamera (6) zum Aufnehmen einer Filmkassette (16) mit einer ersten Öffnung aufweisenden Lippe (18), durch die der Film (20) austritt, und einer zweiten Öffnung, wobei die Stehbildkamera einen Magnetkopf (60) sowie Mittel (62, 63) zum Halten des Magnetkopfes umfaßt,

dadurch gekennzeichnet, daß

der Magnetkopf (60) so angeordnet ist, daß er auf dem Film in der zweiten Öffnung der Kassettenlippe (18) aufliegt, und daß

elastische Mittel (68, 70, 74) zum Halten des Magnetkopfes (60) vorgesehen sind.

2. Fotografische Stehbildkamera nach Anspruch 1, dadurch gekennzeichnet, daß die elastischen Mittel (68, 70, 74) den Magnetkopf (60) zur Ausführung einer Rollbewegung in einer quer zur Längsachse des Films (20) verlaufenden Richtung, zur Ausführung einer Nick-/Neigungsbewegung in einer parallel zur Längsachse des Films verlaufenden Richtung und zur Ausführung einer Hebebewegung in einer im wesentlichen senkrecht zum Film verlaufenden Richtung hält.

3. Fotografische Stehbildkamera nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die elastischen Mittel (68, 70, 74) mit ihrem einen Ende (63) an einer Klappe (8) an der Kamerarückseite befestigt ist und mit ihrem anderen

Ende (70) den Magnetkopf (60) hält.

4. Fotografische Stehbildkamera nach Anspruch 1, dadurch gekennzeichnet, daß die Filmkassette (16) in ihrer Lippe (18) eine Öffnung (59 oder 80) aufweist, in der der Magnetkopf (60) sitzt.

5. Fotografische Filmkassette (16) zur Verwendung in einer fotografischen Kamera (6) mit einem der Aufzeichnung von Informationen auf Film (20) dienenden Magnetkopf (60), wobei die Kassette einen Behälter und eine an diesem vorgesehenen Lippe (18) mit einer ersten Öffnung umfaßt, durch der Film aus dem Behälter austritt,

dadurch gekennzeichnet, daß

die Lippe (18) eine zweite Öffnung (59 oder 80) zur Aufnahme des Magnetkopfes (60) aufweist, damit dieser innerhalb der Lippe Informationen vom Film (20) ablesen oder diese auf dem Film aufzeichnen kann.

Revendications

1. Appareil photographique (6) prévu pour recevoir une cartouche de film (16) ayant une lèvre (18) présentant une première ouverture pour sortir le film (20) et une seconde ouverture, ledit appareil photographique comprenant une tête magnétique (60) et un moyen (62, 63) pour supporter ladite tête magnétique, ledit appareil photographique étant caractérisé en ce que

la tête magnétique (60) est prévue pour venir en contact avec le film à l'intérieur de la seconde ouverture de la lèvre de la cartouche (18), et par

un moyen d'élément souple (68, 70, 74) pour supporter ladite tête magnétique (60).

2. Appareil photographique selon la revendication 1, caractérisé en ce que le moyen d'élément souple (68, 70, 74) supporte ladite tête (60) pour mouvement de roulis dans la direction transversale à l'axe longitudinal du film (20), mouvement de tangage dans une direction parallèle à l'axe longitudinal du film et mouvement d'élévation pratiquement perpendiculaire au film.

3. Appareil photographique selon la revendication 1 ou 2, caractérisé en ce que ledit moyen d'élément souple (68, 70, 74) ayant une extrémité (63) fixée à une porte arrière (8) dudit appareil photographique et son autre extrémité (70) supportant ladite tête magnétique (60).



4. Appareil photographique selon la revendication 1, caractérisé en ce que ladite cartouche (16) a une ouverture (59 ou 80) dans sa lèvre (18) et ladite tête magnétique (60) est reçue par ladite ouverture.

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5. Cartouche de film photographique (16) pour utilisation dans un appareil photographique (6) ayant une tête magnétique (60) pour enregistrer des informations sur le film (20), ladite cartouche comprenant un conteneur et une lèvre (18) sur ledit conteneur, ayant une première ouverture pour sortir le film dudit conteneur, ladite cartouche étant caractérisée par :

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une seconde ouverture (59 ou 80) dans ladite lèvre (18) pour recevoir la tête magnétique (60) pour permettre à ladite tête magnétique de lire et/ou enregistrer des informations sur le film (20) à l'intérieur de ladite lèvre.

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