Description

This invention relates generally to a tape cassette, and more particularly to a tape cassette having a cassette casing which comprises an upper half and a lower half and within which a reel is urged toward the lower half. The invention is particularly suited to a tape cassette for video tape recorders.

Firstly, a conventional tape cassette for video tape recorders (hereinafter referred to as a VTR) will be described with reference to figure 1 of the accompanying drawings.

In the above tape cassette, a pair of right and left reels 2, on which a magnetic tape 1 is wound and only one of which is shown in figure 1, are rotatably accommodated in a cassette casing 5 which comprises an upper half 3 and a lower half 4. Reel pressing means 6 is fitted to a through hole disposed in the upper half 3 so as to be movable in up and down direction, and is urged downwardly by the force of a spring 8 which lies between the reel pressing means 6 and the upper half 3. Thus, a semi-sphere-like projection 9 provided at the central lower end of the reel pressing means 6, depresses a metal plate 11 as a bearing which is horizontally fixed to the upper end of the hub 10 of the reel 2 so that the reel 2 is urged toward the lower half 4.

When the tape cassette inserted into a cassette mounting device (not shown), which is provided in the VTR, is conveyed to a position where the tape cassette is mounted, a reel base 13 is inserted from below in an opening 12 which is provided in the lower half 4, and a driving shaft 15 projecting from the central part of the reel base 13 is fitted into a hole 14 at the central lower end of the hub 10. At the same time, annular ribs 17 projecting from the bottom face of the lower flange 16 of the reel 2 in coaxial relation with the reel 2 abut against the reel base 13, so that the lower flange 16 of the reel 2 is separated upwards from the lower half 4, and at that time, a reel pressing member 18 comprising a leaf spring or the like, and provided in the cassette mounting device, depresses the top end 6a of the reel pressing means 6, so that the reel 2 is firmly fixed to the reel base 13 by the forces of the reel pressing member 18 and spring 8.

It will be seen that the reel pressing means 6 of the tape cassette has a plurality of vertical slits 19 at the upper end 6a thereof so as to make a plurality of engaging portions 20 capable of elastic deformation. Thus, if the engaging portions 20 of the reel pressing means 6 are inserted from below into the through-hole 7 of the upper half 3, the reel pressing means 6 can be connected to the upper half 3.

As the result, the top face 6a of the reel pressing means 6 is of discontinuous surface, so that the reel pressing member 18 of the cassette mounting device is apt to be caught by the reel pressing means 6 when it abuts against the top face 6a of the reel pressing means 6, and thereby, the action of the reel pressing member 18 is made uncertain.

The uncertain action of the reel pressing member 18 makes it difficult to fix the reel 2 stably to the reel base 13, so that the magnetic tape 1 can not stably run due to unsmooth rotation of the reel 2, which takes a form such as gyration of the rotation axis of the reel 2 or an irregular movement of the reel 2. Moreover, there are many restrictions to determine the configuration and construction of the reel pressing member 18 so as not to have the reel pressing member 18 caught by the reel pressing means 6.

Instead, if the reel pressing means 6 is constructed so as to be inserted from above into the through hole 7 of the upper half 3, the reel pressing means 6 must come out of the through hole 7 when the reel 2 is pressed upwards by a large force, or the discontinuous surface of the reel pressing means which comes in contact with the bearing 11 of the reel 2, will wear quickly when the reel is rotated.

Accordingly, it is an object of the present invention to provide a tape cassette, in which a reel pressing member provided in a cassette mounting device is made to come firmly into contact with a reel pressing means provided in the tape cassette, so that the reel passing means is always stably pressed by the reel pressing member.

Another object of the invention is to provide a tape cassette, in which reel pressing means provided in the tape cassette scarcely imposes any restriction on the configuration and construction of a reel pressing member provided in a cassette mounting device.

In accordance with this invention, there is provided a tape cassette comprising:

a reel on which a tape is wound;

a cassette casing having an upper half and a lower half, and rotatably accommodating said reel therein;

reel pressing means fitted in a hole which is provided in said upper half, and suited to be pressed from outside of said cassette casing by a pressing member provided in a cassette mounting device, and to transmit the pressing force of said pressing member to the reel; and

a spring interposed between said upper half and said pressing means so as to urge said reel toward said lower half, and being characterised in that said reel pressing means comprise:

a holder extending inside of the cassette casing and including a reel-bearing for bearing said

reel on a projection, said projection being aligned with the axis of rotation of said reel, and a spring-bearing for transmitting the biasing force of said spring to the reel; and

a cap, the major part of which extends outside of the cassette casing and includes a continuous surface which, when the cassette is in use, is pressed by the reel pressing member, said cap engaging with said holder and said cap and said holder being disposed on opposite sides of said upper half.

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

Figure 1 is a sectional view of the essential part of a conventional tape cassette for VTRs;

Figure 2 is a sectional view of the essential part of a tape cassette according to an embodiment of this invention, for showing a reel depressed by a reel pressing means;

Figure 3 is a sectional view taken along the line III-III on figure 2;

Figure 4 is an exploded, perspective view of the reel pressing means of figure 2;

Figure 5 is a perspective view of two transparent windows which are about to be stacked one upon the other; and

Figure 6 is a sectional view of the two transparent windows of figure 5, after the windows have stacked one upon the other.

An embodiment of the present invention which is applied to a tape cassette for a video recorder will be described with reference to figs 2 to 6.

As shown in figs 2 and 3, a pair of right and left reels 33 (only one is shown) are rotatably arranged in a cassette casing 32 constituted of an upper half 30 and a lower half 31 which are moulded from synthetic resin. Each reel 33 is also moulded from synthetic resin (eg polyoxymethylene) and has a hub 35 around which a magnetic tape 34 is wound, and an upper flange 36 and a lower flange 37 provided at respective ends of the hub 35. The upper flange 36 is fixed to the outer upper end of the hub 35 by welding, and the lower flange 37 is moulded integrally with the outer lower end of the hub 35. The hub 35 is of hollow cylindrical form and is closed by a wall 38 at the upper end thereof, and a semi-spherical projection 39 protrudes from the upper central portion of the wall 38, in other words, in alignment with the rotation axis of the hub 35. Moreover, a downwardly facing driving shaft engaging hole 40 is provided in the hollow cylinder, and annular ribs 41 integrally and concentrically formed with and projecting from the lower surface of the lower flange 37 loosely fit in a driving shaft insertion hole 42 provided in the lower half 31.

Planar transparent windows 45 moulded from synthetic resin are fitted into the upper half 30 above the respective reels 33. The transparent window 45 is engaged from below with a window opening 46 formed in the upper half 30, and its periphery is fixed thereto by welding or adhesion. As shown in figs 2 to 5, a circular recess 47 is provided in an end portion of the upper face 45a of the transparent window 45, and a through hole 48 is provided coaxially with the circular recess 47.

A pair of guide projections 49 and 50 protrude from the lower face 45b of the transparent window 45 on the periphery of and in positions of point symmetry with respect to the centre of the through hole 48. Note that if the transparent window 45 is oblong, the guide projections 49 and 50 are provided so as to make the central line of the pair of guide projections 49 and 50 incline at an angle of 45 degrees with the axis of symmetry of the transparent window 45, lest the respective guide projections 45 and 50 of the windows 45 stacked up adjacent to each other should interfere with each other. A spring seat 51 of annular groove is formed in the lower face 45b of the transparent window 45 outside the guide portions 49 and 50.

As shown in figs 2 to 4, a reel pressing means 55 of the tape cassette comprises a cap 56 and a holder 57. The cap 56 is moulded from synthetic resin (eg polyoxymethylene) and comprises a disk 59 having a flat continuous surface 58 at an upper end, and four arcuate ribs 60, 61, 62 and 63 projecting coaxially with the disk 59 from the lower surface of the disk 59. The pair of arcuate ribs 60 and 61 in opposed relation to each other extend downward, and have engaging portions 64 and 65 which can be elastically deformed in the radial direction. A gate 66 at the time when the cap 56 is injection moulded, is located on the lower face of the disk 59 midway the arcuate rib 62, so that a gap 67 is formed in the arcuate rib 62.

The holder 57 is moulded from synthetic resin (eg polyoxymethylene), and comprises a large-diameter hollow cylinder portion 70 with a lower opening, a small-diameter hollow cylinder portion 71 with an upper opening, which is stacked up coaxially with the large-diameter hollow cylinder portion 70, and an intermediate flat portion 72 for coupling the large- and small-diameter hollow cylinder portions 70 and 71.

As shown in fig 2, a pair of insertion holes 73 and 74 are provided in the intermediate flat portion 72 in positions of point symmetry with respect to the centre of the opening, and so as to communicate with the respective insertion holes 73 and 74, a pair of engaging holes 75 and 76 are formed in the large-diameter hollow cylinder portions 70.

As shown in fig 3, a pair of elastic engaging-portions 77 and 78 project downwardly from the small-diameter hollow cylinder portion 71 and ex-

tend through the intermediate flat portion 72. The pair of elastic engaging-portions 77 and 78 make a right angle along their central line with the pair of insertion holes 73 and 74, and are elastically deformable in the radial direction.

Both ends of a reel bearing 79 of substantially rectangular shape are held by the elastic engaging-portions 77 and 78, and are brought into tight contact with the lower surface of the intermediate flat portion 72. The reel bearing 79 is made of wear resisting material, such as stainless steel, which is different from the material of which the projections 39 of the reel 33 is made.

A pair of notched portions 80 and 81 are formed on the top of the small-diameter hollow cylinder portion 71 above the elastic engaging portions 77 and 78. Moreover, a flange portion 82 is formed on the outer periphery of the lower end of the large-diameter hollow cylinder portion 70, and formed on the upper surface of the flange portion 82, is an annular spring seat 83 of substantially arcuate section.

Next, when the reel pressing means 55 is to be engaged the upper half 30, the transparent window portion 45 is firstly fixed to the window opening 46 of the upper half 30, and the small-diameter hollow cylinder portion 71 of the holder 57 is inserted from below in the through hole 48 of the transparent window 45 as shown in fig 2. At that time, the guide projections 49 and 50 of the transparent window 45 are fitted into the engaging holes 75 and 76 of the large-diameter hollow cylinder portion 70 of the holder 57, so that rotation of the holder 57 with respect to the transparent window 45, that is, the upper half 30, is prevented. Upon insertion of the holder 57, a spring 85 of compression coiled spring is interposed between the spring seat 51 of the transparent window 45 and the spring seat 83 of the flange portion 82 of the large-diameter hollow cylinder portion 70 so as to surround the outer periphery of the holder 57.

The reel bearing 79 is assembled in advance in the holder 57. As shown in fig 3, one end of the reel bearing 79 is engaged one of the engaging portions 77 against the force thereof, and then, the other end thereof is engaged against the force of the other of the engaging portion 78, so that the reel bearing 79 can be easily mounted on the holder 57, for example, without any help of adhesives or the like, and after being mounted, is not easily disengaged from the engaging portions 77 and 78. In addition, as the two end portions of the reel bearing 79 are only engaged with the engaging portions 77 and 78, a large area of the reel bearing 79 can be effectively utilised, and further, since the reel bearing 79 has a substantially rectangular shape, so that it does not rotate together with the reel 33.

Next, as shown in fig 2, the arcuate ribs 60, 61, 62 and 63 of the cap 56 are fitted from above into the small-diameter hollow cylinder portion 71 of the holder 57 to make the cap 56 mount on the upper end of the small-diameter hollow cylinder portion 71. At that time, the engaging portions 64 and 65 of the cap 56 are inserted into the respective insertion holes 73 and 74 of the intermediate flat portion 72 of the holder 57, and are engaged with the lower end of the small-diameter hollow cylinder portion 71. Thus, the cap 56 and the holder 57 are integrally coupled, so that the reel pressing means 55 comprising the cap 56 and holder 57 is mounted on the transparent window portion 45, that is, the upper half 30 so as to be vertically movable through a stroke of $H_1 + H_2$. The diameters of the disk 59 of the cap 56 and the large-diameter hollow cylinder portion 70 of the holder 57 are larger than that of the through hole 48 of the transparent window portion 45, lest the cap 56 and holder 57 should separate from the upper half 30. The reel pressing means 55 comprising the cap 56 and holder 57 is vertically guided by the guide projections 49 and 50 of the upper half 30.

Note that as shown in fig 3, since the pair of notch portions 80 and 81 are formed on the upper end of the small-diameter hollow cylinder portion 71 of the holder 57, the gate 66 of the cap 56 faces either of the notched portions 80 and 81 when the cap 56 is engaged with the holder 57, so that the disk 59 of the cap 56 is always brought into tight contact with the upper end of the small-diameter hollow cylinder portion 71, and since the two notched portions 80 and 81 are symmetrically provided, it is not necessary to ascertain the sense of the cap 56 when the cap is mounted. Moreover, relative movement between the cap 56 and the holder 57 is prevented. The notched portions 80 and 81 may be of V-shape of U-shape instead of the shape illustrated in the drawings.

Next, as shown in figs 2 and 3, the upper half 30 on which the reel pressing means 55 is mounted, is engaged with the lower half 31 in which the reels 33 are accommodated, and thus, the cassette casing 32 is assembled. At that time, the large-diameter hollow cylinder portion 70 of the holder 57 is fitted to the hollow cylinder portion 38 of the reel 33, and the reel bearing 79 of the holder 57 abuts against the projection 39 of the reel 33.

With the tape cassette as above described, when the tape cassette is out of use, the reel pressing means 55 is urged downwards at a stroke of H_1 due to the compressive force of the spring 85 (which is comparatively small when the tape cassette is out of use), and the projection 39 of the reel 33 is pressed against the reel bearing 79 of the holder 57, so that the reel 33 is pressed against the lower half 31. At that time, the disk 59 of the

cap 56 is accommodated in the circular recess 47 of the transparent window 45, and only the continuous surface 58 of the cap 56 is exposed, so that the appearance of the tape cassette is much improved. Note that the cylindrical wall 38 of the reel 33 is fitted to the large-diameter hollow cylinder portion 70 of the holder 57, so that even if the reel 33 is moved in the right to the left direction if the reel 33 is heavily and unexpectedly pressed from below and is separated from the lower half 31, the wall 38 of the reel 33 abuts against the large-diameter hollow cylinder portion 70 of the holder 57 after it is moved by about a distance L, and thus, the movement of the reel 33 is prohibited. Therefore, the reel 33 is prevented from riding on the lower half 31.

When the tape cassette is inserted in the cassette mounting device (not shown) of the video tape recorder, and conveyed to a cassette mounting position, a reel base 90 is inserted from below in the driving shaft insertion hole 42 of the lower half, and a driving shaft 91 projecting from the upper central portion of the reel base 90 is fitted in the driving-shaft engaging hole 40 of the reel 33. In addition, the annular ribs 41 are placed on the reel base 90. Thus, the lower flange 37 of the reel 33 is separated from the lower half 31. At that time, a reel pressing member 92 of a leaf spring provided in the cassette mounting device is pressed against the continuous surface 58 of the disk 59 of the cap 56, and the reel 33 is heavily pressed downwards by the forces of the reel pressing member 92 and spring 85, so that the reel 33 is stably fixed to the reel base 90.

It will be seen that the reel pressing means 55 comprises the cap 56 and the holder 57, the cap 56 is engaged from above with the transparent window 45, that is, the upper half 30, and the upper end of the disk 59 of the cap 56 has the continuous surface 58, so that the reel pressing member 92 is not caught by the continuous surface 58, but the cap 56 of the reel pressing means 55 can be very stably pressed by the reel pressing member 92. As a result, the reel 33 is always stably fixed on the reel base 90, and is prevented from gyration of its rotation axis or relative movement to the reel base 90 during rotation of the reel 33. Therefore, rotation of the reel 33 and the travel of the magnetic tape 34 are much stabilised.

Furthermore, as the reel pressing member 92 is never caught by the continuous surface 58 of the cap 56, the reel pressing member 92 is scarcely restricted in its configuration and construction, and can be freely designed, so that the tape cassette of this invention can be used for VTRs of different kinds. Moreover, as the reel bearing 79 of the holder 57 is made of wear resisting material different from the material used for the projection 39 of the reel 33, the reel 33 is smoothly rotated.

In the illustrated embodiment, the pair of guide projections 49 and 50 of the transparent window 45 are fitted into the pair of engaging holes 75 and 76 of the holder 57 so as to make the reel pressing means 55 guide without rotation thereof. Such guide projections 49 and 50 as mentioned above, are provided in positions of point symmetry with respect to the centre of the through hole 48, and as shown in fig 5, the central line of the pair of guide projections 49 and 50 inclines 45 degrees with respect to the axis of symmetry of the transparent window 45 through the through hole 48, so that when a pair of transparent windows 45 are stacked up as shown in fig 6, in a state that the lower faces 45 of the pair of transparent window 45 are in opposed relation to each other, the respective guide projections of the pair of windows 45 do not interfere with each other. Therefore, when the transparent window portions 45 are packed after their moulding the thickness T of the two transparent window portions 45 can be minimised which is very convenient when a large number of transparent window portions 45 are transported.

In the above embodiment, the cap has a flat continuous surface, but may have a curved continuous surface such as a spherical convex surface or a spherical concave surface. In the above embodiment, the cap is engaged with the holder using a pair of engaging portions. However, various engaging mechanisms may be adopted instead. In the above embodiment, a through hole is formed in the transparent window of the upper half. However, the through hole may be formed in the upper casing half itself.

The present invention is not limited to a tape cassette for a video tape recorder, but may be applied to a tape cassette for various other recording and/or reproduction apparatuses.

Claims

1. A tape cassette comprising:

a reel (33) on which a tape (34) is wound;

a cassette casing having an upper half (30) and a lower half (31), and rotatably accommodating said reel (33) therein;

reel pressing means fitted in a hole (48) which is provided in said upper half (30), and suited to be pressed from outside of said cassette casing by a pressing member provided in a cassette mounting device, and to transmit the pressing force of said pressing member to the reel (33); and

a spring (85) interposed between said upper half (30) and said pressing means so as to urge said reel (33) toward said lower half (31), and being characterised in that said reel press-

cap 56 is accommodated in the circular recess 47 of the transparent window 45, and only the continuous surface 58 of the cap 56 is exposed, so that the appearance of the tape cassette is much improved. Note that the cylindrical wall 38 of the reel 33 is fitted to the large-diameter hollow cylinder portion 70 of the holder 57, so that even if the reel 33 is moved in the right to the left direction if the reel 33 is heavily and unexpectedly pressed from below and is separated from the lower half 31, the wall 38 of the reel 33 abuts against the large-diameter hollow cylinder portion 70 of the holder 57 after it is moved by about a distance L, and thus, the movement of the reel 33 is prohibited. Therefore, the reel 33 is prevented from riding on the lower half 31.

When the tape cassette is inserted in the cassette mounting device (not shown) of the video tape recorder, and conveyed to a cassette mounting position, a reel base 90 is inserted from below in the driving shaft insertion hole 42 of the lower half, and a driving shaft 91 projecting from the upper central portion of the reel base 90 is fitted in the driving-shaft engaging hole 40 of the reel 33. In addition, the annular ribs 41 are placed on the reel base 90. Thus, the lower flange 37 of the reel 33 is separated from the lower half 31. At that time, a reel pressing member 92 of a leaf spring provided in the cassette mounting device is pressed against the continuous surface 58 of the disk 59 of the cap 56, and the reel 33 is heavily pressed downwards by the forces of the reel pressing member 92 and spring 85, so that the reel 33 is stably fixed to the reel base 90.

It will be seen that the reel pressing means 55 comprises the cap 56 and the holder 57, the cap 56 is engaged from above with the transparent window 45, that is, the upper half 30, and the upper end of the disk 59 of the cap 56 has the continuous surface 58, so that the reel pressing member 92 is not caught by the continuous surface 58, but the cap 56 of the reel pressing means 55 can be very stably pressed by the reel pressing member 92. As a result, the reel 33 is always stably fixed on the reel base 90, and is prevented from gyration of its rotation axis or relative movement to the reel base 90 during rotation of the reel 33. Therefore, rotation of the reel 33 and the travel of the magnetic tape 34 are much stabilised.

Furthermore, as the reel pressing member 92 is never caught by the continuous surface 58 of the cap 56, the reel pressing member 92 is scarcely restricted in its configuration and construction, and can be freely designed, so that the tape cassette of this invention can be used for VTRs of different kinds. Moreover, as the reel bearing 79 of the holder 57 is made of wear resisting material different from the material used for the projection 39 of the reel 33, the reel 33 is smoothly rotated.

In the illustrated embodiment, the pair of guide projections 49 and 50 of the transparent window 45 are fitted into the pair of engaging holes 75 and 76 of the holder 57 so as to make the reel pressing means 55 guide without rotation thereof. Such guide projections 49 and 50 as mentioned above, are provided in positions of point symmetry with respect to the centre of the through hole 48, and as shown in fig 5, the central line of the pair of guide projections 49 and 50 inclines 45 degrees with respect to the axis of symmetry of the transparent window 45 through the through hole 48, so that when a pair of transparent windows 45 are stacked up as shown in fig 6, in a state that the lower faces 45 of the pair of transparent window 45 are in opposed relation to each other, the respective guide projections of the pair of windows 45 do not interfere with each other. Therefore, when the transparent window portions 45 are packed after their moulding the thickness T of the two transparent window portions 45 can be minimised which is very convenient when a large number of transparent window portions 45 are transported.

In the above embodiment, the cap has a flat continuous surface, but may have a curved continuous surface such as a spherical convex surface or a spherical concave surface. In the above embodiment, the cap is engaged with the holder using a pair of engaging portions. However, various engaging mechanisms may be adopted instead. In the above embodiment, a through hole is formed in the transparent window of the upper half. However, the through hole may be formed in the upper casing half itself.

The present invention is not limited to a tape cassette for a video tape recorder, but may be applied to a tape cassette for various other recording and/or reproduction apparatuses.

Claims

1. A tape cassette comprising:

a reel (33) on which a tape (34) is wound;

a cassette casing having an upper half (30) and a lower half (31), and rotatably accommodating said reel (33) therein;

reel pressing means fitted in a hole (48) which is provided in said upper half (30), and suited to be pressed from outside of said cassette casing by a pressing member provided in a cassette mounting device, and to transmit the pressing force of said pressing member to the reel (33); and

a spring (85) interposed between said upper half (30) and said pressing means so as to urge said reel (33) toward said lower half (31), and being characterised in that said reel press-

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ing means comprise:

a holder (57) extending inside of the cassette casing and including a reel-bearing (79) for bearing said reel (33) on a projection (39), said projection (39) being aligned with the axis of rotation of said reel (33), and a spring-bearing (83) for transmitting the biasing force of said spring (85) to the reel (33); and

a cap (56), the major part of which extends outside of the cassette casing and includes a continuous surface (58) which, when the cassette is in use, is pressed by the reel pressing member, said cap (56) engaging with said holder (57) and said cap (56) and said holder (57) being disposed on opposite sides of said upper half (30).

2. A tape cassette according to claim 1, wherein said cap (56) and said holder (57) except their portions fitted to said hole (48) of the upper half are larger in diameter than said hole so as to prevent the cap (56) and said holder (57) being separated from said upper half (30) after said cap (56) and said holder (57) are engaged with each other.

3. A tape cassette according to claim 2, wherein said cap (56) and said holder (57) are engaged with each other by elastic deformations of engaging proportions (64,65) of said cap and holder.

4. A tape cassette according to claim 2 or 3, wherein a guide portion (49/50) is provided on the periphery of said hole (48) of the upper half (30) so as to guide said reel pressing means when moved in the vertical direction.

5. A tape cassette according to claim 2, 3 or 4, wherein said spring (85) is constituted by a coiled spring and surrounds said holder (57), both ends of said coiled spring being received by a pair of spring seats (83,51) one of which is said spring bearing (83) and both of which are disposed in respective flanges provided at the lower end of said holder (57) and in the lower face of said upper half (30).

6. A tape cassette according to any one of the preceding claims, wherein said reel-bearing (79) of the holder (57) is made of abrasion resisting material which differs from that used for said projection of the reel.

7. A tape cassette according to any one of the preceding claims, wherein the hole (48) provided in the upper casing half is formed in a transparent window portion (45) of the upper half (30).

Patentansprüche

1. Bandkassette, bestehend aus:

einer Spule (33), auf die ein Band (34) aufgewickelt ist;

einem Kassettengehäuse mit einer oberen Hälfte (30) und einer unteren Hälfte (31), das diese Spule (33) drehbar zwischen diesen aufnimmt;

einem Spulenandrückmittel, das in ein in dieser oberen Hälfte (30) vorgesehenes Loch (48) eingepaßt ist und geeignet ist, von außerhalb dieses Kassettengehäuses von einem Andruckglied, das in einer Kassettenladevorrichtung vorgesehen ist, angedrückt zu werden und die Druckkraft dieses Andruckglieds an die Spule (33) weiterzugeben; und

einer Feder (85), die zwischen dieser oberen Hälfte (30) und diesem Andrückmittel angeordnet ist, so daß sie diese Spule (33) in Richtung dieser unteren Hälfte (31) belastet, und

dadurch gekennzeichnet,

daß dieses Spulenandrückmittel aufweist:

einen Halter (57), der sich innerhalb des Kassettengehäuses erstreckt und eine Spulenauflageplatte (79) aufweist, um diese Spule (33) auf einem Vorsprung (39) zu lagern, wobei dieser Vorsprung (39) mit der Drehachse dieser Spule (33) in einer Linie ausgerichtet ist, sowie ein Federlager (83) zur Übertragung der Vorspannkraft dieser Feder (85) auf die Spule (33); und

eine Kappe (56), deren größter Teil sich außerhalb des Kassettengehäuses erstreckt und eine stete Oberfläche (58) aufweist, die während der Benutzung der Kassette einen Druck durch das Spulenandrückglied erfährt, wobei diese Kappe (56) mit diesem Halter (57) in Eingriff ist und diese Kappe (56) und dieser Halter (57) an entgegengesetzten Seiten dieser oberen Hälfte (30) angeordnet sind.

2. Bandkassette nach Anspruch 1, bei der diese Kappe (56) und dieser Halter (57) abgesehen von ihren Abschnitten, die in dieses Loch (48) der oberen Hälfte eingepaßt sind, einen größeren Durchmesser haben als dieses Loch, so daß verhindert wird, daß die Kappe (56) und dieser Halter (57) von dieser oberen Hälfte (30) getrennt werden, nachdem diese Kappe (56) und dieser Halter (57) miteinander in Eingriff gelangt sind.

3. Bandkassette nach Anspruch 2, bei der diese Kappe (56) und dieser Halter (57) durch elasti-

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sche Verformungen von Eigriffabschnitten (64, 65) dieser Kappe und dieses Halters miteinander in Eingriff gelangen.

4. Bandkassette nach Anspruch 2 oder 3, bei der ein Führungsabschnitt (49/50) auf der Umfangslinie dieses Loches (48) der oberen Hälfte (30) vorgesehen ist, so daß er dieses Spulenandrückmittel führt, wenn er in vertikaler Richtung bewegt wird.

5. Bandkassette nach Anspruch 2, 3 oder 4, bei der diese Feder (85) aus einer Schraubenfeder besteht und diesen Halter (57) umgibt, wobei beide Enden dieser Schraubenfeder von zwei Federsitzen (83, 51) aufgenommen werden, von denen einer das genannte Federlager (83) ist und beide in jeweiligen Tellern angeordnet sind, die am unteren Ende dieses Halters (57) und in der Unterseite dieser oberen Hälfte (30) vorgesehen sind.

6. Bandkassette nach einem der vorhergehenden Ansprüche, bei der diese Spulenauflageplatte (79) des Halters (57) aus verschleißfestem Material besteht, das sich von dem für diesen Vorsprung der Spule verwendeten unterscheidet.

7. Bandkassette nach einem der vorhergehenden Ansprüche, bei der das in der oberen Gehäusehälfte vorgesehene Loch (48) in einem transparenten Fensterabschnitt (45) der oberen Hälfte (30) gebildet ist.

Revendications

1. Cassette à bande comportant:

une bobine (33) sur laquelle est bobinée une bande (34);

un boîtier de cassette qui présente une moitié supérieure (30) et une moitié inférieure (31) et dans lequel se trouve, avec liberté de rotation, ladite bobine (33);

un moyen de poussée sur la bobine, ajusté dans un trou (48) qui est prévu sur ladite moitié supérieure (30) et conçu pour être poussé, depuis l'extérieur dudit boîtier de cassette, par un élément de poussée prévu dans un dispositif de montage de la cassette et pour transmettre à la bobine (33) la force de poussée dudit élément de poussée; et

un ressort (85) interposé entre ladite moitié supérieure (30) et ledit moyen de poussée pour contraindre ladite bobine (33) en direction de ladite moitié inférieure (31), cassette caractérisée par le fait que ledit moyen de poussée sur la bobine comporte:

un support (57) qui s'étend à l'intérieur du boîtier de la cassette et comprend un appui de bobine (79) pour appuyer sur une saillie (39) de ladite bobine (33), ladite saillie (39) étant alignée avec l'axe de rotation de ladite bobine (33), ainsi qu'un appui de ressort (83) pour transmettre à la bobine (33) la force de contrainte dudit ressort (85); et

un chapeau (56) dont la majeure partie s'étend à l'extérieur du boîtier de la cassette et qui présente une surface continue (58) qui, lorsque la cassette est en service, est poussée par l'élément de poussée sur la bobine, ledit chapeau (56) venant en prise avec ledit support (57) et ledit chapeau (56) et ledit support (57) étant disposés des côtés opposés de ladite moitié supérieure (30).

2. Cassette à bande selon la revendication 1, dans laquelle ledit chapeau (56) et ledit support (57) sont, à l'exception de leur portion logée dans ledit trou (48) de la moitié supérieure, de diamètre supérieur à celui dudit trou de façon à empêcher le chapeau (56) et ledit support (57) à se séparer d'avec ladite moitié supérieure (30) après que ledit chapeau (56) et ledit support (57) sont venus en prise l'un avec l'autre.

3. Cassette à bande selon la revendication 2, dans laquelle ledit chapeau (46) et ledit support (57) viennent en prise l'un avec l'autre par déformation élastique des portions (64,65) dudit chapeau et dudit support qui viennent en prise.

4. Cassette à bande selon la revendication 2 ou 3, dans laquelle une portion de guidage (49/50) est prévue sur la périphérie dudit trou (48) de la moitié supérieure (30) de façon à guider ledit moyen de poussée sur la bobine lorsqu'il se déplace dans la direction verticale.

5. Cassette à bande selon les revendications 2, 3 ou 4, dans laquelle ledit ressort (85) est constitué d'un ressort spiral et entoure ledit support (57), les deux extrémités dudit ressort spiral étant reçues par une paire de sièges de ressorts (83,51) dont l'un est ledit appui de ressort (83) et dont les deux sont disposés dans les rebords respectifs prévus à l'extrémité inférieure dudit support (57) et dans la face inférieure de ladite moitié supérieure (30).

6. Cassette à bande selon l'une quelconque des revendications précédentes, dans laquelle ledit appui de bobine (79) du support (57) est fait en un matériau résistant à l'usure et différent

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de celui utilisé pour ladite saillie de la bobine.

- Cassette à bande selon l'une quelconque des revendications précédentes, dans laquelle le trou (48) prévu dans la moitié supérieure du boîtier est formé dans une portion formant fenêtre transparente (45) de la moitié supérieure (30).