SPECIFICATION

Tape cassette

The invention relates to a tape cassette comprising two tape spools on which a record carrier in the form of a tape can be wound, each spool being rotatable for winding the tape onto and unwinding it from that spool, and two pivotable brake levers associated one with each spool and each of which is engageable under the action of spring means with the associated spool to inhibit rotation thereof in a direction to unwind the tape from that spool, and is disengageable from the spool to permit rotation thereof to wind the tape onto or unwind it from that spool.

United States Patent Specification No. 4,022,401 discloses a magnetic-tape cassette of this construction in which the two brake levers are pivotably journalled on bearing pins which are rigidly mounted on two walls of the cassette housing, and the two brake levers each comprise a resilient hook at one end for cooperation with teeth provided on the associated tape spool.

United States Patent Specification No. 4,029,268 discloses an arrangement in which two brake levers comprising pawls for cooperation with teeth on the tape spools are carried out on a mount which is movable between first and second positions and which during movement from the first position to the second position first brings the brake levers into engagement with the tape spools and then moves the brake levers to rotate each spool through a limited angle in a direction to wind the tape onto that spool. Thus, when a cassette has been in use, any slack in the part of the magnetic tape which extends between the two spools is taken up and this part of the magnetic tape is kept free from backlash and kept taut under the influence of a comparatively small tensile force. This is essential for a correct operation of the cassette, because if the magnetic tape in the cassette is not taut, the tape is likely to be damaged when the cassette is placed on or is removed from a recording and/or playback apparatus.

According to the present invention there is provided a tape cassette comprising two tape spools on which a record carrier in the form of a tape can be wound, each spool being rotatable for winding the tape onto and unwinding it from that spool, and two pivotable brake levers associated one with each spool and each of which is engageable under the action of spring means with the associated spool to inhibit rotation thereof in a direction to unwind the tape from that spool, and is disengageable from the spool to permit rotation thereof to wind the tape onto or unwind it from that spool, the two brake levers being carried on a mount which is movable between first and second positions and which during movement from first position to the second position first brings the brake levers into engagement with the tape spools and then moves the brake levers to rotate each spool through a limited angle in a direction to wind the tape onto that spool, wherein during movement of the mount from the second position to the first position the brake levers each cooperate with a control surface of the cassette so as to be pivoted out engagement with the spools.

The magnitude of the rotary movement imparted to the tape spools by the brake levers depends not only on the travel of the lever mount but also on the construction of the control surface with which each brake lever cooperates. By a suitable choice of the construction of the relevant components an adequate rotation of the tape spools by the brake levers can be obtained. Thus, in the cassette in accordance with the invention it is achieved that always a comparatively large adequate rotary movement is imparted to the two tape spools upon the engagement of the brake levers with the spools, ensuring that even a comparatively large amount of slack in the tape is taken up in a simple manner.

Control surfaces for the two brake levers may be provided in the form of oblique surfaces on walls of a housing of the cassette for cooperation with projection on the brake levers. In one embodiment of the invention, however, for each brake lever a control surface is provided in the form of a stop with which the respective brake lever engages when the brake-lever mount moves from the second position to the first position. This provides a robust, trouble-free and reliable construction. Such a stop for a brake lever may, for example, be constituted by a pin which project from a wall of the cassette housing. In this respect it is found to be advantageous when the stop for each brake lever comprises a portion of a wall of the cassette housing. This yields a simple and compact construction, because no special stop means are necessary.

After placing the cassette on a recording and/or playback apparatus the brake-lever mount can be moved, for example, with the aid of an actuating mechanism provided on the apparatus, from the second position to the first position so as to disengage the brake levers and from the first position to the second position to bring the brake levers back into their engaged positions. However, it is advantageous to provide spring means which act on the brake-lever mount to urge the mount towards the second position, as in the cassette described in the aforesaid U.S. specification no. 4,029,268. This ensures that the brake-lever mount, which is moved to the first position and retained in this position when the cassette is placed on the recording and/or playback apparatus, automatically returns from its first position to its second position under the influence of the spring means which act on the lever mount upon removal of the cassette from the apparatus, the brake levers then assuming their engaged positions. Thus, it is automatically ensured that when the cassette is removed from an apparatus the tape spools are engaged by the brake levers.

The spring means which act on the brake-lever mount and the spring means which act on the brake levers may be constituted by separate springs of different types, and may, for example,

be constituted by elastic projections on the lever mount or on the brake levers themselves. However, it may be advantageous if the two spring means are formed by one multi-armed leaf spring having arms which engage the brake lever mount and the brake levers. This is advantageous in terms of the simple mounting and little space required for the spring.

Two embodiments of the invention will now be described in more detail with reference to the accompanying drawings, in which

Fig. 1 is a plan view of a cassette according to one embodiment of the invention with one half of the cassette housing removed and with the two brake levers shown in their engaged positions.

Fig. 2 is a view similar to Fig. 1 showing the brake levers in their disengaged positions,

Fig. 3 is a cross-sectional view of the cassette in Fig. 1 taken on the line III—III in Fig. 1,

Fig. 4 is a cross-sectional view of the mount for the brake levers of the cassette of Figs. 1 to 3, taken on the line IV—IV in Fig. 3, and

Fig. 5 shows part of a second embodiment of a cassette in accordance with the invention in plan view with one half of the cassette housing removed.

The cassette shown in Figs. 1 to 3 comprises a rectangular housing 1 which is constructed in two halves and which comprises two major walls 2 and 3, side walls 4 and 5, a front wall 6 and a rear wall 7. The cassette housing 1 contains two flanged tape spools 10 and 11 which are rotatable about parallel axes 8 and 9 and on which is wound a magnetic tape 12 accommodated in the cassette housing 1. By rotation of the spools 10 and 11 in the counter-clockwise direction, as viewed in Figs. 1 and 2, the tape 12 can be unwound from the spool 10 and wound onto the spool 11, and by rotation of the spools in the reverse direction the tape can be unwound from the spool 11 and wound onto the spool 10. The magnetic tape 12 travels between the two tape spools 10 and 11 *via* two guide pins 13 and 14, which guide the magnetic tape along the front wall 6 of the cassette housing. In the front wall 6 an opening 15 is formed, through which opening a portion of the magnetic tape contained in the cassette housing can be pulled out of the housing to cooperate with guide and scanning elements of a recording and/or playback apparatus during an operation of the apparatus. Alternatively, it would be possible to pass guide and scanning elements for the magnetic tape into the cassette housing through the opening 15 in the front wall 6 for cooperation with the magnetic tape, which then remains wholly inside the housing, during operation.

During operation the magnetic tape travels in known manner from one tape spool to the other. During this transport of the magnetic tape the tape is scanned by one or more stationary or moving scanning elements, depending on the type of recording and/or playback apparatus used, in order to play back a recording made on the magnetic tape or in order to make such a recording. When the cassette is removed from the apparatus after use, care must be taken that the magnetic tape is not slack, because this may give rise to looping of the tape inside the cassette housing. The magnetic tape should be sufficiently taut between the two tape spools.

For this purpose the cassette is provided with two brake levers 16 and 17 associated with the tape spools 10 and 11 respectively, which levers are movable between a disengaged position, in which the brake levers 16 and 17 are disengaged from the associated tape spools 10 and 11 respectively, and an engaged position, in which the brake levers engage the associated tape spools. Fig. 1 shows the brake levers 16 and 17 in the engaged positions and Fig. 2 shows them in the disengaged positions.

To simplify their construction each of the two brake levers 16 and 17 cooperates with only one flange 18 and 19 respectively of the associated tape spool 10 and 11 respectively, which two flanges 18 and 19 are at opposite ends of the tape spools, viewed in the axial direction of the spools. The brake levers 16 and 17 are constructed as pawls for cooperation with ratchet teeth 21 and 23 on the edges of the spool flanges 18 and 19 respectively, the levers having hook-shaped parts 20 and 22 respectively, at one end for engagement with the respective ratchet teeth. Each ratchet tooth has a flank which extends substantially radially of the respective spool flange and a flank which extends tangentially of an imaginary circle concentric with the flange and which therefore slopes relative to the radially extending flank, the flanks being arranged so that when the respective spool is rotating in the winding direction the sloping flange, is leading and when it is rotating in the unwinding direction the radially extending flank is leading. The hook-shaped part 20, 22 of each brake lever can slide up the sloping flanks of the ratchet teeth of the associated spool without exerting a torque on the spool sufficient to rotate it in the unwinding direction. When the hook-shaped part of each lever engages the radially extending flank of a tooth of the associated spool it can rotate the spool in the winding direction, as will be explained later herein. Instead of constructing the brake levers as pawls and providing ratchet teeth on the relevant spool flanges, each brake lever could be provided with a brake pad in place of the hook-shaped part 20 or 22 of the lever for cooperation with the edge of the respective spool flange, which edge in this case is smooth. The brake pad may be made of rubber, foamed plastic or any other suitable material with a high coefficient of friction. Each brake lever may be constructed to cooperate with both flanges of the associated tape spool or with a separate brake drum or ring of ratchet teeth coaxially connected to the spool.

Brake springs 24 and 25 in the form of resilient tongues connected to the brake levers 16 and 17 respectively, act on the brake levers to urge them from their disengaged positions to their engaged positions. Upon engaging the tape spools 10 and

11 the brake levers, as will be explained in detail hereinafter, rotate the two spools 10 and 11 in the winding direction.

As is shown in Figs. 1 to 3, a basically T-shaped mount 26 for the two brake levers 16 and 17 is provided in the cassette housing near the rear wall 7 thereof. The lever mount 26 comprises a main portion 27 which is slidable between two parallel ridges 28, 29 and two parallel ridges 30, 31, which project from the inner sides of the two major walls 2 and 3 respectively of the cassette housing and which extend perpendicularly to the rear wall 7. The lever mount 26 is thus slidably guided in the cassette housing. The lever mount, as will be explained hereinafter, is movable between a forward position, shown in Fig. 1. In which the brake levers are in their engaged positions, and a rearward position adjacent the rear wall of the cassette housing, shown in Fig. 2, in which the brake levers are in their disengaged positions.

The lever mount 26 has two pairs of spaced arms 32, 33 and 34, 35 which extend laterally from the main portion 27 of the mount in opposite directions, substantially parallel to the rear wall 7 of the cassette housing 1. The two arms 32 and 33 have coaxial bores 36 and 37 near their free ends, through which bores extend two coaxial journals 38 and 39 respectively, provided on the brake lever 16 intermediate the ends thereof. The brake lever 16 is thus pivotably journalled on the lever mount 26. In a similar way the second brake lever 17 is pivotably journalled on the mount 26 by means of journals 40 and 41 which extend through coaxial bores 42 and 43 in the two other arms 34 and 35 of the lever mount 26. Between the two arms 32 and 33, adjacent the main portion 27 of the mount, there is provided a connecting member 44, against which the free end of the resilient tongue 24, which functions as a brake spring for the brake lever 16, bears under prestress. In a similar way the free end of the tongue 25, which functions as a brake spring for the brake lever 17, bears with prestress against a connecting member 45 provided between the two arms 34 and 35 adjacent the main portion 27 of the mount 26. Thus, the two prestressed resilient tongues 24 and 25 resiliently urge the two brake levers 16 and 17 to their engaged positions.

The movement of the lever mount 26 from the forward position to the rearward position is controlled from outside the cassette. On its front end 46, which is the end remote from the rear wall 7 of the cassette housing, the main portion 27 of the lever mount 26, as is shown most clearly in Fig. 4, has two actuating surfaces 47 and 48 which extend obliquely relative to the direction of movement of the mount 26 and also relative to the major walls 2 and 3 respectively of the cassette housing. The two actuating surfaces 47 and 48 are disposed near the walls 2 and 3 respectively so as to be engageable by an actuating element of a recording and/or playback apparatus *via* openings 49 and 50 respectively in the walls 2 and 3. The actuating element may, for example, be constituted by an actuating pin 51, which is represented by dotted lines in Figs. 1 to 4. When the cassette is inserted in the apparatus, the pin 51 enters the cassette housing 1 through one of the two openings 49 and 50 in the major walls 2 and 3 of the housing, depending on which of these walls faces the apparatus, and engages the oblique actuating surface 47 or 48 which is near that opening. As the actuating pin 51 slides up the actuating surface 47 or 48, it moves the lever mount 26 back from the forward position to the rearward position.

The lever mount 26 is moved from the forward position to the rearward position against the action of an actuating spring 52, which acts on the main portion 27 of the lever mount. This actuating spring consists of a two-armed leaf spring, which bears against the rear wall 7 of the cassette housing and the two spring arms 53 and 54 of which bear with prestress against the rear end 55 of the main portion 27 of the lever mount 26. The actuating spring 52 urges the lever mount from the rearward position to the forward position. As soon as the actuating pin 51, which cooperates with the lever mount, is withdrawn from the cassette housing, the actuating spring 52 automatically moves the lever mount 26 from the rearward position to the forward position.

For pivoting the two brake levers from their engaged positions to their disengaged positions when the lever mount is moved from its forward position (Fig. 1) to its rearward position (Fig. 2) by the actuating pin 51, a control surface is provided in the cassette housing 1 for each of the two brake levers 16 and 17. These control surfaces comprise stops with which the brake levers engage during their pivotal movement as the lever mount is moved from the forward position to the rearward position. In the embodiment shown these brake-lever stops comprises portions 72 and 73 of the rear wall 7 of the cassette housing 1. However, it is obvious that for each brake lever a separate stop or the like connected to one or both of the two major walls of the cassette housing, may be provided instead.

When the actuating pin 51 enters the cassette housing through one of the openings 49 and 50 and engages the respective oblique actuating surface 47 or 48, the lever mount 26 is moved from its forward position towards the rear wall 7 of the cassette housing against the action of the actuating spring 52. During this movement the two brake levers 16 and 17 move rearwards translationally with the lever mount and at the same time pivot relative to the mount about the axes of the journals 38, 39 and 40, 41 under the influence of the brake springs 24 and 25, with the result that the hook-shaped parts 20 and 22 of the brake levers slide up the sloping flanks of the ratchet teeth 21 and 23 of the tape spools 10 and 11 without exerting sufficient torque on the spools to rotate them in the unwinding direction. After a certain rearward travel of the lever mount 26 the two brake levers 16 and 17 engage the stops 72 and 73 on the rear wall 7 of the cassette housing

1 with their ends 56 and 57 which are remote from the hook-shaped parts 20 and 22 of the levers. During the further rearward movement of the lever mount 26 the two brake levers, because they are now held stationary against the stops 72 and 73 at their ends 56 and 57 under the influence of the brake springs 24 and 25, pivot about the axes of journals 38, 39 and 40, 41 against the action of the brake springs 24 and 25 in directions such that the levers are disengaged from the tape spools 10 and 11. The lever mount 26 finally reaches its rearward position, as shown in Fig. 2, when the actuating pin 51 reaches that part of the front end 46 of the lever mount which extends between the two actuating surfaces 47 and 48, the actuating spring 52 urging the lever mount against the actuating pin 51. The brake levers 16 and 17 are then in the disengaged positions shown in Fig. 2.

When the brake levers are disengaged from the tape spools the spools can rotate freely. Thus, transport of the magnetic tape from one spool to the other is possible, the magnetic tape being unwound from the one spool and wound on the other. When a cassette has been in use, it frequently occurs that the portion of the magnetic tape extending between the two spools is no longer sufficiently taut. This may, for example, be caused by frequent interruptions during use, or by the braking devices of a recording and/or playback apparatus not providing the correct braking action for the two spools, or by similar influences. If the magnetic tape between the two spools is not kept sufficiently taut, this may lead to an undesirable degree of slackness in the magnetic tape and thus to looping of the tape inside the cassette housing. During subsequent use of the cassette this may give rise to faulty operation and to damage or breakage of the magnetic tape.

For this reason it has been proposed to arrange the brake levers in a cassette in such a manner that when they engage the tape spools, they rotate the spools in the winding direction sufficiently to take up any slack in the magnetic tape in the cassette. In a cassette in accordance with the invention this is achieved in a particularly simple, robust and reliable manner, as will appear from the following description.

When the lever mount 26 is in the rearward position (Fig. 2) and the actuating pin 51, which cooperates with the front end 46 of the mount, is withdrawn from the cassette, for example because the cassette is removed from a recording and/or playback apparatus, the lever mount 26 is moved forwards out of its rearward position under the influence of the actuating spring 52. The two brake levers 16 and 17 move forwards with the lever mount while their ends 56 and 57 remain in engagement with the stops 72 and 73 under the influence of the brake springs 24 and 25, with the result that the brake levers pivot about the axes of journals 38, 39 and 40, 41 under the influence of the brake springs 24 and 25, and the hook-shaped parts 20 and 22 of one of the brake levers each engage the radially extending flank of one of the ratchet teeth 21, 23 on the respective spool flange 18 or 19. As the forward movment of the lever mount 26 continues, the ends 56 and 57 of the brake levers 16 and 17 are disengaged from the stops 72 and 73 on the rear wall 7 of the cassette housing and the brake levers 16 and 17, now each in engagement with the radially extending flank of a ratchet tooth of the respective tape spool 10 or 11, move forwards translationally with the mount and at the same time pivot relative to the mount about the axes of journals 38, 39 and 40, 41 against the action of the brake springs 24 and 25. The resultant movement of the brake levers causes rotation of the tape spools in the winding direction so that the magnetic tape is wound onto both spools until it is tensioned between the spools. The degree of rotation of the tape spools is determined by the distance over which the lever mount is moved after the brake levers have become disengaged from the stops 72 and 73. As soon as the magnetic tape is sufficiently taut, the two tape spools can be rotated no further in the winding direction and are thus stopped. This also stops the brake levers, so that the lever mount can be moved no further forward by the actuating spring. Thus, the forward position of the lever mount, and the corresponding engaged positions of the brake levers, are determined by the amount of slack in the magnetic tape. The tension in the magnetic tape is determined by the force of the actuating spring 52 which acts on the lever mount. In general, it may be stated that as the lever mount is moved from its rearward position to its forward position the brake levers, which are pivotably journalled on the movable lever mount and are thus movable in the cassette housing, impart a comparatively large rotation to the tape spools. Thus, under normal circumstances the magnetic tape will always be tensioned when the cassette is not in use.

As shown in Fig. 1, in the forward position of the lever mount 26, the front end 46 of the mount is disposed at a small distance from a rigid member 58 which projects from the inner side of the major wall 3 of the cassette housing 1. This member serves as a stop for the lever mount 26 and limits the maximum possible forward travel of the mount. This allows for the exceptional case in which due, for example, to a user dropping the cassette and a comparatively large amount of magnetic tape being unwound as a result, the tape cannot be tensioned by a single movement of the lever mount from its rearward position to its forward position. In that case the forward position of the lever mount is not determined by the amount of slack in the magnetic tape but by the stop member 58. This ensures that the actuating surfaces 47 and 48 of the lever mount are always accessible for engagement by an actuating element such as the actuating pin 51 through the openings 49 and 50 in the major walls 2 and 3 of the cassette housing. If the stop member 58 were not provided, the lever mount 26 could be moved so far forward by the actuating spring 52 as to prevent the entry of the actuating element into the

cassette housing. When a single movement of the lever mount from its rearward position to its forward position and the associated movement of the brake levers does not suffice to tension the magnetic tape, this may be achieved by moving the lever mount several times to and fro. The hook-shaped parts of the brake levers then alternately slide up the sloping flanks of the ratchet teeth of the tape spools without rotating the spools in the unwinding direction and then engage the radially extending flanks of the teeth to rotate the tape spools in the winding direction. This process has already been described above for a single to-and-fro movement of the lever mount.

The foregoing describes a simple means whereby under normal circumstances a magnetic tape can still be tensioned in a simple, reliable and effective manner, even if the tape has a comparatively large loop in it. Since the lever mount 26 is resiliently loaded by the actuating spring 52, the lever mount is automatically moved from its rearward position to its forward position so that the brake levers are always automatically set to their engaged positions. The use of the rear wall of the cassette housing as a control surface for the two brake levers obviates the need for a separate control surface, which may be regarded as advantageous for a simple and compact construction of the cassette.

In the embodiment of Fig. 5 an integral four-armed leaf spring 59 is arranged on the rear wall 107 of the cassette housing 101 and constitutes both the actuating spring for the lever mount 126 and the brake springs for the two brake levers 116 and 117. Two arms 60 and 61 of the leaf spring 59 bear with prestress against the rear end 155 of the main portion 127 of the lever mount 126, and two further arms 62 and 64 bear with prestress against pins 63 and 65 respectively which project from the brake levers 116 and 117 respectively. The two arms 62 and 64 of the leaf spring 59 act as brake springs for the two brake levers 116 and 117 to urge the brake levers towards their engaged positions.

The control surfaces for the two brake levers 116 and 117 are provided by walls 70 and 71 of two angled or arcuate control slots 66 and 67 which are formed in the major wall 103 of the cassette housing and into which extend pins 68 and 69 respectively which project from the brake levers 116 and 117 respectively for cooperation with the walls 70 and 71 of the two control slots 66 and 67. These walls are shaped to cause the two brake levers 116 and 117 to pivot during movement of the lever mount 126 between its rearward and forward positions, so that these brake levers will act on the tape spools 110 and 111 in a manner similar to the action of the brake levers 16 and 17 of the embodiment of Figs. 1 to 4.

The use of the four-armed leaf spring may be advantageous in terms of the space that is available and a simple assembly. Depending on the shape of the walls of the control slots 66 and 67 which cooperate with the pins 68 and 69 on the brake levers, any desired and effective cycle of movements for the brake levers can be obtained by means of the control slots.

Modifications of the above constructions are possible within the scope of the invention, for example in respect of the construction of the lever mount and of the brake springs and the actuating spring. These springs may be helical springs instead of leaf springs. The lever mount for the two brake levers need not be mounted so as to be slidable in the cassette but may alternatively be pivotably journalled in the cassette. The invention can also be applied to cassettes having two tape spools which are arranged coaxially with one another, and to cassettes in which two tape spools are arranged side-by-side, as in the embodiments described, but are rotated in the same direction when the record carrier is being wound or unwound.

Reference is invited to the specification of the Applicants' patent application no. 8217412, in which there is claimed a tape cassette comprising a housing containing two tape spools which are arranged side-by-side in the housing for rotation about parallel axes and on which a record carrier in the form of a tape can be wound, each spool being rotatable for winding the tape onto and unwinding it from that spool, and the housing comprising two parallel major walls and a plurality of walls which extend between the major walls and which include a front wall having an opening through which a portion of the tape carried by the spools can be pulled out of the housing to cooperate with guide and scanning elements of a recording and/or playback apparatus, or through which such elements can pass into the cassette housing for cooperation with the tape carried by the spools, and a rear wall disposed opposite the front wall, and the cassette further comprising two brake levers which are each constructed as a pawl for cooperation with teeth on an associated one of the spools and which are carried by a mount which is slidably guided in the cassette housing for translational movement away from and towards the rear wall of the housing between a first position in which each of the brake levers is disengaged from the associated spool to permit rotation thereof to wind the tape onto or unwind it from that spool, and a second position in which each brake lever engages a tooth on the associated spool under spring bias to inhibit rotation of the spool in a direction to unwind the tape from that spool, the mount being urged by spring means towards the second position and being arranged during movement from the first position to the second position first to bring each brake lever into engagement with a tooth on the associated tape spool and then to move the brake levers to rotate each spool through a limited angle in a direction to wind the tape onto that spool, wherein the spring means for urging the mount towards the second position act on the mount independently of the spring bias on the brake levers, wherein the brake levers, during movement of the mount from the second position to the first

position, are each cooperable with a control surface in the cassette housing so as to be disengaged thereby from the associated spool against said spring bias, and wherein the teeth on each spool are located at the periphery of a flange on the spool, and the mount is situated in an area of the housing which lies between the spools and between the rear wall of the housing and a plane containing the axes of rotation of the spools.

CLAIMS

1. A tape cassette comprising two tape spools on which a record carrier in the form of a tape can be wound, each spool being rotatable for winding the tape onto and unwinding it from that spool, and two pivotable brake levers associated one with each spool and each of which is engageable under the action of spring means with the associated spool to inhibit rotation thereof in a direction to unwind the tape from that spool, and is disengageable from the spool to permit rotation thereof to wind the tape onto or unwind it from that spool, the two brake levers being carried on a mount which is movable between first and second positions and which during movement from the first position to the second position first brings the brake levers into engagement with the tape spools and then moves the brake levers to rotate each spool through a limited angle in a direction to wind the tape onto that spool, wherein during movement of the mount from the second position to the first position the brake levers each cooperate with a control surface of the cassette so as to be pivoted out engagement with the spools.

2. A tape cassette as claimed in Claim 1, wherein for each brake lever a control surface is provided in the form of a stop with which the respective brake lever engages when the brake-lever mount is moved from the second position to the first position.

3. A tape cassette as claimed in Claim 2, comprising a housing which contains the tape spools and brake levers, and wherein the stop for each brake lever comprises a portion of a wall of the cassette housing.

4. A tape cassette as claimed in Claim 1, 2 or 3, comprising spring means which act on the brake-lever mount to urge the mount towards the second position.

5. A tape cassette as claimed in Claim 4, wherein the spring means which act on the brake-lever mount and the spring means which act on the brake levers are formed by one multi-armed leaf spring having arms which engage the brake-lever mount and the brake levers.

6. A tape cassette substantially as herein described with reference to Figs. 1 to 4 or Fig. 5 of the accompanying drawings.

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position, are each cooperable with a control surface in the cassette housing so as to be disengaged thereby from the associated spool against said spring bias, and wherein the teeth on each spool are located at the periphery of a flange on the spool, and the mount is situated in an area of the housing which lies between the spools and between the rear wall of the housing and a plane containing the axes of rotation of the spools.

CLAIMS

1. A tape cassette comprising two tape spools on which a record carrier in the form of a tape can be wound, each spool being rotatable for winding the tape onto and unwinding it from that spool, and two pivotable brake levers associated one with each spool and each of which is engageable under the action of spring means with the associated spool to inhibit rotation thereof in a direction to unwind the tape from that spool, and is disengageable from the spool to permit rotation thereof to wind the tape onto or unwind it from that spool, the two brake levers being carried on a mount which is movable between first and second positions and which during movement from the first position to the second position first brings the brake levers into engagement with the tape spools and then moves the brake levers to rotate each spool through a limited angle in a direction to wind the tape onto that spool, wherein during movement of the mount from the second position to the first position the brake levers each cooperate with a control surface of the cassette so as to be pivoted out engagement with the spools.

2. A tape cassette as claimed in Claim 1, wherein for each brake lever a control surface is provided in the form of a stop with which the respective brake lever engages when the brake-lever mount is moved from the second position to the first position.

3. A tape cassette as claimed in Claim 2, comprising a housing which contains the tape spools and brake levers, and wherein the stop for each brake lever comprises a portion of a wall of the cassette housing.

4. A tape cassette as claimed in Claim 1, 2 or 3, comprising spring means which act on the brake-lever mount to urge the mount towards the second position.

5. A tape cassette as claimed in Claim 4, wherein the spring means which act on the brake-lever mount and the spring means which act on the brake levers are formed by one multi-armed leaf spring having arms which engage the brake-lever mount and the brake levers.

6. A tape cassette substantially as herein described with reference to Figs. 1 to 4 or Fig. 5 of the accompanying drawings.

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