



The invention relates to a recording and/or reproducing apparatus for a record carrier in the form of a tape, comprising a mounting support, a capstan, which is coaxially connected to a shaft, for driving the record carrier, and a radial bearing means for radially supporting the shaft, which radial bearing means is provided on the

5 mounting support and comprises a first positioning sleeve, which is situated at one side of the shaft and is adjustable perpendicularly to the shaft, and a second positioning sleeve, which is spaced from said first positioning sleeve in the axial direction of the shaft and is disposed in line with the shaft, for adjusting the inclination of the shaft.

An apparatus of the type defined in the opening paragraph is known from

10 AT-A-356,410.

In this known apparatus the radial-bearing means for radially supporting the shaft, which has been prolonged to act as a capstan for the record carrier, comprise in addition to the radial bearing, which is adjustable relative to the mounting support constituted by a part of the chassis of the apparatus, a further radial bearing, which is

15 spaced from the adjustable bearing in the direction of the shaft and which is arranged on a further part of the chassis. Thus, in the known apparatus the radial bearing means comprise two radial bearings which are spaced from each other and which are arranged independently of each other on two chassis parts, which constitutes an intricate construction requiring a substantial amount of assembly work and which is a

20 disadvantage in view of the space occupied in the axial direction of the shaft.

It is the object of the invention to mitigate the aforementioned problems and to construct an apparatus of the type defined in the opening paragraph in such a way that the construction of the radial bearing means for radially supporting the shaft is simplified considerably and at the same time a correct and simple adjustment of the

25 inclination of the shaft and hence of the drive member is guaranteed. To this end the invention is characterised in that the first positioning sleeve is a rotatable adjustable eccentric cylinder, both positioning sleeves are fixedly connected to one another and form a single adjustable radial bearing, and both positioning sleeves are at least partly

surrounded by the mounting support to support them rotatably. Since the radial-bearing means for radially supporting the shaft only comprise the adjustable radial bearing the construction is very simple and compact and requires less assembly work. By connecting this adjustable radial bearing to the two axially spaced positioning sleeves which are disposed eccentrically relative to one another a correct adjustment of the inclination of the shaft and hence of the drive member is achieved by means of a very simple construction. This adjustment of the inclination is possible with a very simple adjustment process because this merely requires the two positioning sleeves connected to the adjustable bearing to be rotated, the eccentric arrangement of the two positioning sleeves relative to each other causing the adjustable radial bearing together with the shaft to perform a pivotal movement by means of which the inclination of the shaft and the drive member connected thereto is adjusted. Such an adjustment of the inclination of the drive member, which may be a capstan for the record carrier or a pressure roller which cooperates with a capstan, is necessary because, as is known, the drive member should be brought into a geometrical position relative to the record carrier in which the force exerted on the record carrier by this drive member is such that during its transport the record carrier always moves exactly in a predetermined direction and is consequently moved past the record-carrier scanning means in the same relative position, which is essential for a correct recording and/or reproducing process in such apparatus.

From DE-AS 11 40 737 it is known *per se* to rotatably support a shaft which has been prolonged to form a capstan for the record carrier by means of only one radial bearing which is adjustable relative to the mounting support constituted by a magnetic-head support. However, the adjusting means for adjusting the inclination of the shaft, which means are formed by three set-screws which each act on an annular flange of the radial bearing against the force of a cup spring, comprise a comparatively large number of parts and adjustment of the shaft inclination by means of the three set-screws is an operation which requires comparatively much work and time. Conversely, in the apparatus in accordance with the invention the construction for adjusting the inclination of the shaft and hence of the drive member is comparatively simple and adjustment of this inclination can be effected very simply.

The further positioning sleeve may be arranged eccentrically relative to the shaft, in which case the both positioning sleeves, which are disposed eccentrically

relative to each other, are also disposed eccentrically relative to the shaft. This is an advantage in order to obtain a large adjustment range for the inclination adjustment, but it slightly complicates the manufacture of the adjustable radial bearing connected to the positioning sleeves. It is found to be advantageous if the further positioning sleeve is
5 coaxial with the shaft. In practice, this provides an adequate adjustment range for the inclination adjustment and at the same time it enables a simple manufacture of the adjustable radial bearing connected to the positioning sleeves to be achieved.

In this respect it is found to be very advantageous if the adjustable radial bearing comprises a bearing bush receiving the shaft, the second positioning sleeve,
10 which is coaxial with the shaft, being provided at the circumferential surface of said bush, and a sleeve member which is non-rotatably mounted on said bush and at whose circumferential surface the first positioning sleeve, which is disposed eccentrically of the shaft, is provided. In this way it is achieved that the bearing bush of the adjustable radial bearing is of a perfectly rotationally symmetrical construction and can therefore
15 be manufactured simply, the sleeve member comprising the eccentric positioning sleeve being simply mounted onto said bearing bush so that all in all the adjustable radial bearing connected to the two positioning sleeves can be manufactured in a very favourable manner.

Rotating the positioning sleeves of the adjustable radial bearing in order
20 to adjust the inclination of the shaft and the drive member may be effected, for example, by hand without a tool after releasing a rotational locking means. Moreover, at one of its ends the adjustable radial bearing connected to the positioning sleeves may comprise a hexagonal portion which can be rotated by means of a spanner, but this often gives rise to problems because of a lack of space. Therefore, it is found to be
25 very advantageous if the adjustable radial bearing comprises a toothed portion adapted to cooperate with an independently drivable adjustment gear wheel which serves as a tool for adjusting the radial bearing. In this way it is simple to rotate the positioning sleeves over any desired range for adjusting the adjustable radial bearing.

The adjustment gear wheel may be permanently mounted on the
30 mounting support adjacent the adjustable radial bearing, in which case such an adjustment gear wheel should be provided in each apparatus. It is found to be advantageous if adjacent the adjustable radial bearing the mounting support has a bore for receiving a journal which projects from a first radial surface of the adjustment gear

wheel, the adjustment gear wheel being detachable from the mounting support and comprising at its second radial surface an actuating member for rotating the adjustment gear wheel, which actuating member is coaxial with the journal and projects from said second radial surface. As a result of this, the mounting support of each apparatus should
5 only be formed with a simple bore, which is a comparatively cheap provision.

The invention will now be described in more detail on the basis of two embodiments which are shown in the drawings but to which the invention is not limited. Fig 1 shows diagrammatically a substantially full-size plan view of a part of a recording and/or reproducing apparatus for a record carrier in the form of a tape accommodated
10 in a cassette, with a capstan for driving this record carrier, which capstan is rotatably supported in accordance with the invention and whose inclination relative to the record carrier is adjustable. Fig. 2 is a sectional view taken on the line II-II in Fig. 1 and to an approximately ten times larger scale, showing the capstan of the apparatus of Fig. 1 and its bearing means in accordance with a first embodiment of the invention. Fig. 3 is a
15 view similar to that of Fig. 2 and showing the capstan for the record carrier of a recording and/or reproducing apparatus and its bearing means in accordance with a second embodiment of the invention.

The recording and/or reproducing apparatus 1 shown in Fig. 1 has a trough-like recess 2 which is adapted to receive a cassette 3 of a generally known
20 construction. The cassette 3 contains a magnetisable record carrier 4 in the form of a tape, hereinafter briefly referred to as "magnetic tape". In the operating condition shown the magnetic tape 4 extends from a first reel hub 6 containing a full tape spool 5 to an empty second reel hub 10 via a first tape guide, along a narrow side 8 formed with openings for the passage of magnetic heads and a pressure roller, and via a second
25 tape guide 9.

In order to drive the magnetic tape 4 during a normal recording or reproducing process, when the magnetic tape is driven with a constant speed in the customary manner, the apparatus 1 comprises a capstan 11 which is made of steel and which constitutes a cylindrical drive member for the magnetic tape 4. The capstan 11
30 extends into the cassette 2 through openings 12 in the two main walls of this cassette and engages behind the magnetic tape 4. As can be seen in Fig. 2, the capstan 11 is constituted by an extension of a shaft 13, i.e. it is integral and coaxial with the shaft 13. A constriction 14 is formed at the transition between the capstan 11 and the shaft 13 to

fit a retaining ring 15 which serves for axially supporting the capstan 11 and the shaft 13. For radially supporting the shaft 13 on a plastics chassis 16 which serves as a mounting support there is provided a radial bearing means 17 whose construction will be described in detail hereinafter. The shaft 13, which is coaxial with the capstan 11, carries a flywheel 18, which in a manner not shown can be driven with a constant speed by a motor, for example *via* a drive belt.

The apparatus 1 comprises a pressure roller 19 which is adapted to cooperate with the capstan 11 and by means of which the magnetic tape 4 can be pressed against the capstan 11 during normal recording or reproduction. The pressure roller 19 is pivotally mounted on a slide 23 which is movable in the direction indicated by the double arrow 22 *via* a lever 21 which is loaded by a spring 20. Fig. 1 shows the slide 23 in the position occupied during normal recording or reproduction, in which position the pressure roller 19 presses the magnetic tape 4 against the capstan 11 and a magnetic erase head 24 and a magnetic recording/play-back head 25 are in contact with the magnetic tape 4 through the openings in the narrow side wall 8 of the cassette 3.

The shaft 13, which is coaxial with the capstan 11, further carries a gear wheel 26 which is rotationally locked thereto and which also serves for axially supporting the capstan 11 and the shaft 13. During a normal recording or reproduction process the gear wheel 26 is in mesh with an intermediate gear wheel 28, which is pivotally supported on the chassis 16 by means of a lever 27. The intermediate gear wheel 28 is coaxial with and rotationally locked to a further intermediate gear wheel 29, which meshes with a gear wheel 30 during a normal recording or reproducing process. By means of the gear wheel 30 a winding spindle 31, which is coaxial with this gear wheel, the second reel hub 10 can be driven *via* a friction clutch, not shown. During normal recording or reproduction the shaft 13, which is coaxial with the capstan 11, can thus drive the second reel hub 10 *via* the gear wheel 26, the two intermediate gear wheels 28 and 29, the gear wheel 30, the friction clutch and the reel hub 31 to wind the magnetic tape 4, which is driven by the capstan 11 in conjunction with the pressure roller 9, onto the reel hub 10.

The slide 23 can be moved out of the operating position shown in Fig. 1 away from the cassette 3, in which case the magnetic heads 24 and 25 become disengaged from the magnetic tape 4, the pressure roller 19 is lifted off the capstan 11, and the lever 21 abuts against a stop 32 on the slide 23. Further, by means of a guide

surface, not shown, on the slide 23 the intermediate gear wheels 28 and 29 are moved in the direction indicated by the arrow 33 by the slide 23, in such a way that the intermediate gear wheel 29 is no longer in mesh with the gear wheel 30. In the rest position of the slide 23, in which it has been moved away from the cassette 3, the magnetic tape 4 can be wound rapidly between the two reel hubs 6 and 10 in opposite directions of transport. The magnetic tape 4 is then driven in known manner *via* the reel hubs 6 and 10, the reel hub 6 being in driving engagement with a winding spindle 34 and the reel hub 10 with the afore-mentioned winding spindle 31. By means of a friction clutch, not shown, the winding spindle 34 can be driven by a gear wheel 35 which is coaxial with this spindle.

For selectively driving the two gear wheels 35 and 30 which are coaxial with the winding spindles 34 and 31 during fast winding the apparatus 1 comprises a winding/drive mechanism 36. This mechanism comprises a first gear wheel 37 arranged on the chassis 16, which gear wheel can be rotated in opposite directions of rotation and is in mesh with a second gear wheel 38. The second gear wheel 38 is rotatably mounted on a lever 39, which is pivotable about the spindle of the first gear wheel 37. Depending on the direction of rotation of the first gear wheel 37 the second gear wheel 38 is pivoted in the direction indicated by an arrow 40 or 41 and meshes with one of the two gear wheels 30 or 35, which are coaxial with the winding spindles, in order to drive these spindles. It is to be noted that the second gear wheel 38 is latched in a neutral centre position by means of a latching device arranged on the slide 23 when the slide 23 is in its operating position in which it has been moved towards the cassette, as is shown in Fig. 1. This ensures that fast winding is not possible during a normal recording or reproducing mode. When the slide 23 is in its rest position the latching device allows the second gear wheel 38 to be pivoted.

Hereinafter the radial bearing means 17 for the shaft 13 and the capstan 11, which is coaxial therewith, will be described in more detail with reference to Fig. 2. The radial bearing means is of a very simple construction since it comprises only one radial bearing 17, which is adjustable relative to the chassis 16 in a direction transverse to the shaft 13. This adjustable radial bearing 17 comprises a bearing bush 42 made of a sintered metal and receiving the shaft 13, and a sleeve member 43 made of a plastics and mounted on the bearing bush 42. The bearing bush 42 is constructed as a double bearing and therefore it surrounds the shaft 13 with two bearing sections, one near each

end portion of the bearing bush 42. Between the two bearing sections the bearing bush 42 is clear of the shaft 13. Obviously, the bearing bush may comprise a bearing section which extends and surrounds the shaft 13 over the full axial length of this bush. The sleeve member 43 is pressed onto the bearing bush 42 and is thus non-rotatably fixed to the bearing bush. The sleeve member may also be connected to the bearing bush by means of an adhesive or in another way.

For adjusting the inclination of the shaft 13 and the capstan 11 relative to the magnetic tape 4 the adjustable radial bearing 17 is connected to a first positioning sleeve 45, which is disposed eccentrically relative to the shaft 13, for positioning the adjustable radial bearing 17 transversely of the shaft 13, and a further positioning sleeve 47, which is spaced from the first positioning sleeve 45 in the direction of the shaft 13 and which is disposed eccentrically relative to said shaft, for positioning the adjustable radial bearing 17 transversely of the shaft 13. In Fig. 2 the axis of the shaft 13 is indicated by a dash-dot line 43 and the axis of the positioning sleeve 45 is indicated by a dash-dot line 46. In the present case the eccentricity is approximately 0.15 mm, which is found to be a suitable practical value for the present embodiment. In order to obtain an indication of the eccentricity the adjustable radial bearing 17 comprises a cylindrical projection 48 formed on the sleeve member 43 and serving as a marker. During mounting of the adjustable radial bearing 17 this projection 48 is brought into a predetermined position relative to the chassis 16, which position is defined by means of, for example, a corresponding marker. The two positioning sleeves 45 and 47 are both rotatably supported in the chassis 16. The first positioning sleeve 45 engages a hollow cylindrical recess 49 and the second positioning sleeve 47 engages a hollow cylindrical recess 50 in the chassis 16. The two positioning sleeves fit the recesses with such a friction that in normal operation the two positioning sleeves are locked against inadvertent rotation and consequently against an undesired adjustment of the adjustable radial bearing 17. In the present case the first positioning sleeve 45, which is disposed eccentrically of the shaft 13, is provided on the circumferential surface of the sleeve member 43 and the second positioning sleeve 47, which is now simply coaxial with the shaft 13, is provided on the circumferential surface of the bearing bush 42. In this way it is achieved that the bearing bush 42 is fully rotationally symmetrical and can thus be manufactured simply in the customary manner. Despite its rotationally asymmetrical shape the sleeve member 43, which can be manufactured simply as a plastics part can

be pressed simply onto this rotationally symmetrical bearing bush 42, so that all in all the adjustable radial bearing 17 can be manufactured in a very favourable manner. The sleeve member 43, which is pressed onto the bearing bush 42, comprises a sleeve portion 51 adjoining the positioning sleeve 45, which is disposed eccentrically of the shaft 13, which sleeve portion is formed with an axial slot, is coaxial with the shaft 13 and has offset resilient end portions which engage behind an annular projection 52 on the chassis 16 and thus retain the sleeve member 43 with its positioning sleeve 45 in the recess 49. The bearing bush 42 with its sleeve portion 53 carrying the sleeve member 43 is axially supported on a hollow cylindrical portion 54 of the chassis 16. It is to be noted that the shaft 13 is axially supported by the retaining ring 15 and the gear wheel 26, which bear against the bearing bush 42 at its opposite ends. Obviously, the shaft 13 may be axially supported in a different way, for example by means of a step bearing which cooperates with the free end portion of the shaft 13.

For adjusting the adjustable radial bearing 17, in order to adjust the inclination of the shaft 13 and the capstan 11 relative to the magnetic tape, the sleeve member 43, which is connected to the bearing bush 42, comprises a toothed portion 55 which is coaxial with the first positioning sleeve 45 and which cooperates with an adjustment gear wheel 56 which can be driven to act as a tool for adjusting the radial bearing 17. The toothed portion 55 extends over the entire circumference of the sleeve 43. However, alternatively it may be provided over only a part of the circumference. In the chassis 16 adjacent the adjustable radial bearing 17 a bore 57 is formed for receiving a journal 59 which projects from a first radial surface 58 of the adjustment gear wheel 56. In the present case the adjustment gear wheel 56 is detachable from the chassis 16 and on its second radial surface 60 it carries an actuating member 61 for rotating the gear wheel 56, which actuating member is coaxial with the journal 59. In this way a tool is obtained by means of which the inclination of the shaft 13 and the capstan 11 can be adjusted in a multitude of apparatuses. The apparatus itself then only has in its chassis a bore for rotatably supporting the adjustment gear wheel, which is a comparatively cheap provision. The actuating member 61 can extend through an opening 62 in each main wall 63 of a test cassette 64. In principle, the test cassette 64 is of the same construction as the cassette 3 shown in Fig. 1 but it comprises additional means for observing and checking the transport of the magnetic tape past the magnetic heads 24 and 25 and the capstan 11 during transport of the magnetic tape. In the case of

a manual adjustment of the inclination of the shaft 13 and the capstan 11 the actuating member 61 is actuated by hand. However, it can also be motor-driven, which is the case when the adjustment of the inclination is effected by means of a computer-controlled automatic adjusting device.

- 5 After mounting in the apparatus it is necessary to adjust the inclination of the capstan 11 because the capstan 11 should occupy a specific geometrical position relative to the magnetic tape 4, in which position it exerts such a force on the magnetic tape 4 driven by said capstan that this magnetic tape 4 always moves exactly in a given direction and is always moved past the magnetic heads 24 and 25 in the same relative
- 10 position, which is essential for a correct and reproducible recording and reproducing process with such apparatuses. For mounting the capstan 11 the adjustable radial bearing 7 is simply inserted into the chassis 16 from the cassette side, in such a way that the projection 48 occupies the given position relative to the chassis 16, after which the capstan 11 is passed through the bearing bush 42 from the opposite side, the shaft
- 15 13 is inserted into the bearing bush 42, and finally the retaining ring 15 is fitted. In order to adjust the inclination of the capstan 11 a test cassette 64 is loaded into the apparatus and the magnetic tape 4 of this cassette is driven in the same way as during normal recording or reproduction. Further, the adjustment gear wheel 56 is simply inserted through the test cassette 64 until it meshes with the toothed portion 55, the
- 20 journal 59 cooperating with the bore 57 in the chassis 16 for rotatably supporting the adjustment gear wheel 56. To adjust the inclination of the capstan 11 the gear wheel 56 is rotated so that the toothed portion 55 is driven, which results in the two positioning sleeves 45 and 47 being rotated relative to the chassis 16 when the friction between the two sleeves and this chassis is overcome. As a result of the eccentric position of the two
- 25 positioning sleeves 45 and 47 relative to each other their rotation results in a pivotal movement of the adjustable radial bearing 17 substantially about the positioning sleeve 47, causing the radial bearing 17 to be adjusted in a direction transverse to the shaft 13. During this pivotal movement the adjustable radial bearing 17 and the positioning sleeves 45 and 47 connected thereto produce a deformation of the chassis 16 of the
- 30 order of micrometres at the location of the recesses 49 and 50. Obviously, this pivotal movement of the adjustable radial bearing 17 gives rise to a corresponding pivotal movement of the capstan 11, which movement has two components which are relevant in the present context, namely one component which extends parallel to the plane of the

magnetic tape 4 as shown in Fig. 2 and a further component which extends perpendicularly to the plane of the magnetic tape 4 in Fig. 2. The first-mentioned component has a substantial influence on the correct transport of the magnetic tape past the magnetic heads and by a suitable adjustment of the inclination of the capstan 11 it should be selected in such a way that the magnetic tape 4 always moves past the magnetic heads 24 and 25 at the same level. The second component has hardly any effect on the transport of the magnetic tape in such apparatuses and may therefore be practically ignored. In the present case the adjustment of the inclination of the capstan 11 by driving the adjustment gear wheel 56 and the resulting adjustment of the radial bearing 17 proceeds while the magnetic tape 4 is being driven by the capstan 11 until it is ascertained by means of the test cassette 64 that the desired tape transport past the magnetic heads 24 and 25 is obtained. The inclination of the capstan is adjusted by means of a very simple adjustment procedure by rotating the positioning sleeves and the inclination of the capstan is adjusted dynamically, which is very advantageous. Once the adjustment of the inclination has been completed, the adjustment gear wheel 56 and subsequently the test cassette 64 are removed from the apparatus.

As is apparent from the above description the radial bearing means for the capstan is of a very simple construction comprising only one adjustable radial bearing, which is also advantageous in view of a simple mounting and a small overall height of the apparatus. By dividing the adjustable radial bearing into a rotationally symmetrical bearing bush and a rotationally asymmetrical sleeve mounted on said bush this adjustable bearing can be manufactured in a particularly favourable manner. Adjusting the inclination proceeds very simply by simply rotating the two positioning sleeves in the chassis. Adjusting the adjustable radial bearing by means of a toothed portion which can be driven by an adjustment gear wheel has the advantages of a simple adjusting movement which is not geometrically limited.

In the second embodiment shown in Fig. 3, as in the embodiment described in the foregoing, the radial bearing means comprises only one adjustable radial bearing 17. This adjustable radial bearing 17 simply comprises a bearing bush 56 which is integral with two positioning sleeves 66 and 67 which are disposed eccentrically relative to each other and which are spaced from each other in the axial direction of the shaft 13. Of these two positioning sleeves the positioning sleeve 66, whose axis is indicated by a dash-dot line 68 in Fig. 3, is disposed eccentrically of the

shaft 13 and the positioning sleeve 67 is coaxial with the shaft 13. In this bearing construction the eccentricity is approximately 0.07 mm, which has been found to be a suitable practical value for the present embodiment. The positioning sleeve 66 is mounted in a cylindrical bore 69 in the chassis 16 and the positioning sleeve 67 in a cylindrical bore 70 in the chassis 16. In order to retain the bearing bush 65 in the chassis 16 it comprises a plurality of clamping projections 71, two of which are visible in Fig. 3. For rotating the two positioning sleeves 66 and 67 relative to the chassis 16 in order to adjust the bearing bush 65 for the purpose of adjusting the inclination of the capstan 11, the bearing bush 65 is formed with a toothed portion 72 which is coaxial with the shaft 13 and which extends over a part of its circumference, which toothed portion is adapted to cooperate with a gear wheel 56 which is detachable from the chassis 16. In order to lock the bearing bush 65 against inadvertent rotation the chassis 16 carries a resilient latching projection 73 whose free end presses against the circumferential surface of a cylindrical portion 74 of the bearing bush 65, which circumferential surface comprises a plurality of narrow flat portions whose long sides extend in the axial direction of the shaft 13.

In the present embodiment the radial bearing means suitably also comprises only the adjustable radial bearing. For adjusting the inclination of the capstan the two positioning sleeves are simply rotated relative to the chassis, so that in the present case adjustment also proceeds very simply. During the adjustment of the inclination of the capstan the adjustable radial bearing formed by the bearing bush is tilted, which in the present case is effected substantially about the positioning sleeve situated nearest the cassette. Since the adjustable radial bearing is of a one-piece construction, the number of parts is minimised, its construction being also favourable in view of a small overall height of the apparatus.

Obviously, further modifications are possible within the scope of the present invention. For example, in accordance with the invention it is also possible to rotatably support a pressure roller adapted to cooperate with a capstan by means of only one adjustable radial bearing and to adjust the inclination of said roller relative to the record carrier, the mounting support being constituted by, for example, the lever on the slide. In the two embodiments described in the foregoing the bearing portions of the chassis, in which the positioning sleeves, which are disposed eccentrically of the shaft, are rotatable have the same eccentricity as the positioning sleeves which they receive;

however, these bearing portions may alternatively have a smaller eccentricity than the positioning sleeves they receive, as a result of which the influence of the component perpendicular to the magnetic tape of the tilting movement during the adjustment of the inclination becomes very small. Moreover, the two positioning sleeves of an adjustable

5 radial bearing may also be disposed eccentrically of the shaft, which enables a larger adjustment range to be obtained. Two such positioning sleeves which are disposed eccentrically of the shaft may exhibit eccentricities in different radial directions. For rotatably supporting the positioning sleeves these sleeves may also be surrounded only partly by the mounting support. Obviously, the invention can also be utilized in

10 apparatuses in which the record carrier is not accommodated in a cassette but extends between two reels which can be mounted in the apparatus.

CLAIMS:

1. A recording and/or reproducing apparatus for a record carrier (4) in the form of a tape, comprising a mounting support (16), a capstan (11), which is coaxially connected to a shaft (13), for driving the record carrier, and a radial bearing means for radially supporting the shaft (13), which radial bearing means is provided on the
5 mounting support (16) and comprises a first positioning sleeve, which is situated at one side of the shaft (13) and is adjustable perpendicularly to the shaft (13), and a second positioning sleeve (47, 67), which is spaced from said first positioning sleeve in the axial direction of the shaft (13) and is disposed in line with the shaft (13), for adjusting the inclination of the shaft (13), characterised in that the first positioning sleeve is a
10 rotatable adjustable eccentric cylinder (45, 69), both positioning sleeves (45, 47; 69, 67) are fixedly connected to one another and form a single adjustable radial bearing (17), and both positioning sleeves (45, 47; 69, 67) are at least partly surrounded by the mounting support (16) to support them rotatably.
2. An apparatus as claimed in Claim 1, characterized in that the second
15 positioning sleeve (47) is coaxial with the shaft (13).
3. An apparatus as claimed in Claim 2, characterised in that the adjustable radial bearing (17) comprises a bearing bush (42) receiving the shaft (13), the second positioning sleeve (47), which is coaxial with the shaft (13), being provided at the circumferential surface of said bush, and a sleeve member (43) which is non-rotatably
20 mounted on said bush and at whose circumferential surface the first positioning sleeve (45), which is disposed eccentrically of the shaft, is provided.
4. An apparatus as claimed in any one of the preceding Claims, characterised in that the adjustable radial bearing (17) comprises a toothed portion (55) adapted to cooperate with an independently drivable adjustment gear wheel which serves
25 as a tool for adjusting the radial bearing (17).
5. An apparatus as claimed in Claim 4, characterised in that adjacent the adjustable radial bearing (17) the mounting support (16) has a bore (57) for receiving a journal (59) which projects from a first radial surface (58) of the adjustment gear wheel



(56), the adjustment gear wheel (56) being detachable from the mounting support (16) and comprising at its second radial surface (60) an actuating member (61) for rotating the adjustment gear wheel (56), which actuating member is coaxial with the journal (59) and projects from said second radial surface (60).