APPARATUS FOR RECORDING AND/OR REPRODUCING INFORMATION ON A FLEXIBLE DISC

This invention relates to apparatus for recording and/or reproducing information, such as a video signal, on a flexible disc.

When it is required that a video signal is recorded and/or reproduced by a magnetic head in a circular or spiral recording track formed on a flexible magnetic disc which is rotated at high speed, such as 1800 or 3600 RPM, the stable contact of the magnetic head with the magnetic disc can be attained as follows. Firstly, the flexible magnetic disc used for such recording or reproducing is extremely thin, for example 40 microns, so that the magnetic disc is conventionally contained in a jacket or cassette A as shown in Figure 1A of the accompanying drawings for preventing folding or other damage to the magnetic disc C. The jacket A is provided with a window portion B, through which the magnetic head contacts the magnetic disc C.

In a conventional magnetic disc recorder, the diameter of the magnetic disc C used may be relatively large, for example 30 cm. When such a magnetic disc C is rotated at relatively high speed within the jacket A, the magnetic disc C tends to be stretched by centrifugal force acting on the magnetic disc C itself and by an air film which is generated in areas between the magnetic disc C and upper and lower walls A_1 and A_2 of the jacket A, as shown by arrows in Figure 1B of the accompanying drawings. As a result, even when the magnetic head is pushed towards the magnetic disc C so as to keep it in contact with the magnetic disc C, the magnetic disc C does not move away from the magnetic head but tends to remain in stable contact with the magnetic head.

However, with the move towards magnetic discs of smaller diameter, it becomes harder to produce sufficient centrifugal force and air film to ensure the stable contact of the magnetic head with the magnetic disc.

According to the present invention there is provided apparatus for recording and/or reproducing information on a flexible magnetic disc contained in a jacket, the apparatus comprising:

means for rotating said flexible magnetic disc at a predetermined rotational

speed;

magnetic transducer means to be positioned in contacting relation with one surface of said flexible magnetic disc through a first cut-out of said jacket;

regulating plate means movable between an operative position and an inoperative position, said regulating plate means having a first guiding surface which in said operative position of said regulating plate means is inserted into said jacket through a second cut-out opposite to said first cut-out so that said first guiding surface is then positioned close to the other surface of said flexible magnetic disc, and movement of said regulating plate from said operative position to said inoperative position removing said regulating plate means from said second cut-out of said jacket;

positioning plate means positioned in facing relation to said regulating plate means, and having a second guiding surface which in said operative position of said regulating plate means is spaced a predetermined distance from said first guiding surface; and

means for adjusting the position of said regulating plate means when said regulating plate means is in said operative position to enable said regulating plate means to be set in the optimum position relative to said positioning plate means.

The invention will now be described by way of example with reference to the accompanying drawings, throughout which like parts are referred to by like references, and in which:

Figure 1A is a perspective view of a known magnetic sheet jacket;

Figure 1B is a fragementary sectional view of the magnetic sheet jacket of Figure 1A;

Figure 2 is a plan view of a magnetic sheet jacket which is preferably

used in an apparatus according to the invention;

Figure 3 is a rear elevation view of the magnetic sheet jacket of Figure 2;

Figure 5 is a perspective view of a magnetic disc recording and/or reproducing apparatus;

Figure 6 is a longitudinal sectional view of parts of a magnetic sheet jacket set in the magnetic recording and/or reproducing apparatus of Figure 5;

Figure 7 is a lateral sectional view of parts of the magnetic sheet jacket set in the magnetic recording and/or reproducing apparatus;

Figure 8 is a perspective view of a guide plate and a regulating plate mounted on a case cover;

Figure 9 is a bottom view of the regulating plate of Figure 8;

Figure 10 is a sectional view taken on line V-V in Figure 8;

Figure 11 is a perspective view of a head assembly; and

Figure 12 is an elevation partly in section of the head assembly of Figure 11.

Firstly, a magnetic sheet jacket 1 which is preferably used in an apparatus according to the invention will be explained in detail, referring to Figures 2 to 4.

The magnetic sheet jacket 1, which is small enough to be enclosed in a hand, is in the form of a casing 2 formed by upper and lower plates. A disc-like magnetic sheet 3 is rotatably contained in the interior of the casing 2 of the jacket 1 (see Figure 4). On the magnetic sheet 3, still image information, for example, is magnetically recorded as concentric circular recording tracks by a magnetic head or a plurality of magnetic heads through a window 4 formed in the jacket 1.

On a central portion of the magnetic sheet 3, a centre hub 6 for receiving and holding a rotary drive shaft (not here shown) of the magnetic recording and reproducing apparatus is mounted. The centre hub 6 is a disc made of a plastics or resin material.

The centre hub 6 is formed substantially in its central portion with a drive shaft reception hole 7, in which the rotary drive shaft mentioned above is received. In the hole 7, positioning surfaces 8 in contact with the outer periphery of the drive shaft and having a substantially V-shaped form are formed for aligning the centre of rotation of the magnetic sheet 3 to the

axis of the drive shaft. The centre of rotation of the rotary drive shaft of the magnetic sheet 3 is determined with respect to the positioning surfaces 8. A resilient section 9 for urging the drive shaft elastically against the positioning surfaces 8 is formed in the hole 7 at a position opposite to the positioning surfaces 8. The resilient section 9 is formed by providing an elongate hole 10 on the side opposite to a resilient surface 9a in contact with the outer periphery of the drive shaft.

The resilient surface 9a is preferably formed so as to project towards the positioning surfaces 8 for ensuring firm contact with the outer periphery of the drive shaft.

The positioning surfaces 8 and the resilient section 9 can be formed as an integral moulding of a resin material when forming the centre hub 6, thus facilitating the manufacture. In addition, since the resilient section 9 is made of a plastics or resin material, it can itself provide the elastic effect.

The centre hub 6 has an annular magnetic member 11 integrally mounted on a central portion of its lower surface 6a. The magnetic member 11 faces a magnet (not here shown) integrally mounted on the drive shaft, and is attracted by the magnetic force of the magnet. A detecting pin 13 for detecting the rotational phase of the magnetic sheet 3 and a non-magnetic balancing pin 14 having substantially the same weight as the detecting pin 13 are embedded at positions on opposite sides of the centre of the hole 7 of the centre hub 6. As hereinafter described in detail, the detecting pin 13 cooperates with a detecting coil provided on the locus of rotation of the detecting pin 13 to permit detection of whether the magnetic sheet 3 is rotating at a constant rotational speed. More particularly, every time the detecting pin 13 revolving with the rotating magnetic sheet 3 approaches the detecting coil, a detecting signal for detecting the rotational phase of the magnetic sheet 3 is generated.

On the outer periphery of the annular magnetic member 11 of the centre hub 6, at least three supports 16 are formed. Surfaces 16a of the supports 16 project slightly from the lower surface 6a of the centre hub 6. The supports 16 are used for determining a reference level with respect to the magnetic recording surface 3a, such that the axis of the stationary shaft is accurately at right angles to the recording surface 3a of the magnetic sheet 3. When the magnetic sheet 3 is mounted on the stationary shaft, the

surfaces 16a of the supports 16 contact with a reference surface formed on a receiving portion provided on the drive shaft. Consequently, the horizontal state of the recording surface 3a of the magnetic sheet 3 is ensured with reference to the surfaces 16a of the supports 16.

In the window 4 of the casing 2, a magnetic head or a plurality of magnetic heads are inserted for magnetically recording a plurality of fields or frames of video signals on the magnetic sheet 3. The magnetic head or heads inserted in the window 4 are shifted in the radial direction of the magnetic sheet 3 (from the inner periphery side towards the outer periphery) for every rotation of the magnetic sheet 3 to effect magnetic recording of the video signal as a spiral track or concentric circular tracks on the magnetic sheet 3.

Next, a magnetic disc recording and/or reproducing apparatus 20 which is used to record on and reproduce from the magnetic sheet 3 contained in the jacket 2 will be described with reference first to Figure 5.

In the apparatus 20 a cassette holder 21 is mounted by a hinge 21a on a base plate 22 such that it can be opened and closed. The jacket 1 is removably mounted on the cassette holder 21. The cassette holder 21 is movable with respect to the base plate 22 between a jacket receiving position, in which the jacket 1 can be inserted, and an operative position, in which the magnetic sheet 3 in the jacket 1 can be driven for rotation.

On the base plate 22, there are provided a turntable 70, which supports the centre hub 6 provided at the centre of the magnetic sheet 3, a magnetic head H for recording and/or reproducing, for example, still image information on or from the magnetic sheet 3, a guide plate 75 for stabilizing the state of contact between the magnetic head H and the magnetic sheet 3, a head operating section 80 for automatically progressively and intermittently moving the magnetic head H in the radial direction of the magnetic sheet 3, and a drive motor 71 for driving the turntable 70 and other parts.

The magnetic head H is mounted on an intermediate portion of a movable arm 81 which forms the head operating section 80, and it extends into a head window 76 formed in the guide plate 75 for stabilizing the contact of the magnetic head H with the magnetic sheet 3 from below. A pair of level regulation pins 77 project upwardly from the guide plate 75. The pins 77 are located such that they are spaced apart a predetermined

distance with respect to a regulating plate 90 which is provided on a case cover 23 forming the cassette holder 21, as hereinafter described.

A spring 82 is connected with the movable arm 81 such that the movable arm 81 is biased in the direction of an arrow A about a pin 82a, as shown in Figure 5.

On a substantially central portion of the base plate 22, is mounted a stationary shaft 72 which is inserted into the hole 7 in the jacket 1. The turntable 70, which also serves as a flywheel, is rotatably mounted on the stationary shaft 72 via a ball bearing 73 as shown in Figures 6 and 7. A belt 74a is passed round the turntable 70 and a belt pulley 74 mounted on the drive shaft 71a of the drive motor 71. When the magnetic sheet jacket 1 is mounted in position, an end 72a of the stationary shaft 72 penetrates the hole 7 formed in the centre hub 6 mounted at the centre of the magnetic sheet 3 and projects outwardly from the jacket 1 as shown in Figure 6. the end 72a engages a gap adjusting screw 26 screwed on the end of the regulating plate 90.

The guide plate 75 is inserted in the window 4 of the jacket 1 and guides the magnetic sheet 3 such that it can stably rotate in the sheet jacket 1. As shown in Figure 8, the guide plate 75 has a plate-like horizontal section 27 provided with an integral stem block 28 formed at the stem of the plate section 27. At the upper end of the plate section 27 is provided a smooth sheet guiding surface 27a for guiding the magnetic sheet 3 such that it is substantially parallel to its rotating surface. The guiding surface 27a serves to regulate the position of the magnetic sheet 3 in portions surrounding the portion where the magnetic head H comes into contact with the magnetic sheet 3 (see Figure 6). To this end, the guiding surface 27a has an arcularly chamfered edge 27b. On the underside of the stem block 28, guide surfaces 28d and 28e, in frictional contact with which slidable portions 29a and 29b of a head slider 29 which carries the magnetic head H, are formed. The horizontal plate section 27 is formed in its central portion with the head window 76, which is used to permit the magnetic head H to project onto the guiding surface 27a of the guide plate 75 for magnetic recording on the magnetic sheet 3.

As mentioned before, the head operating section 80 serves to effect tracking operation of the magnetic head H such that the magnetic head H is intermittently shifted in the radial direction of the magnetic sheet 3 for

progressively magnetically recording information, for example, over an area from the innermost track to the outermost track. In the illustrated example, it comprises the L-shaped movable head arm 81 which is rotatably supported on the pin 82a projecting from the base plate 22. The magnetic head H is integrally mounted on the head slider 29 mounted in a central portion of the movable arm 81. As hereinafter described in detail, a leaf spring which is used for urging the head slider 29 towards the guide surfaces 28d and 28e of the stem block 28 is interposed between the head slider 29 and the movable arm 81.

The cassette holder 21 includes a plate-like receiving frame 52 in which the jacket 1 is received, and a case cover 23 covering the whole jacket 1.

As shown in Figure 5, the opposite sides of the receiving frame 52 are provided with receiving sections 52a and 52b having a substantially channel-shaped sectional profile for receiving the jacket 1, and a ceiling section 52c forming a ceiling portion of the frame 52 is formed with a circular hole 53 for observing a track number display mechanism 19 provided on the jacket 1 and an opening 54 which is formed at a position corresponding to the regulating plate 90.

One side of the receiving frame 52 is provided with an engagement groove 52d, and its end is formed with a stop 55 for temporarily locking the cassette holder 21 in the base plate 22 in the operating position. The stop 55 is arranged to engage an engagement piece 56 provided on the base plate 22.

The case cover 23 is formed at its position corresponding to the hole 53 in the frame 52 with a circular hole 57, and it is also formed with bent portions 23a and 23b extending along its opposite edges (Figure 8). To one of these bent portions, that is the bent portion 23b, an engagement pin 58 engaging the engagement groove 52d in the frame 52 is secured, as shown in Figure 8. The engagement pin 58 is provided to prevent the case cover 23 from being excessively opened with respect to the frame 52. Therefore the engagement pin 58 and the engagement groove 52d function to hold the frame 52 and the case cover 23 together and prevent their separation.

The case cover 23 is provided with the regulating plate 90. As shown in Figures 5 and 8, the regulating plate 90 includes a regulating section 90a for regulating the position of the magnetic sheet 3 from the upper side

thereof and a mounting section 90b integrally mounted on the top. It is provided at a position of the case cover 23 facing the guide plate 75. In this embodiment, the case cover 23 is movably supported in the axial direction by four engagement pins 30a, 30b, 30c and 30d, as shown in Figure 8.

A compression spring 31 is interposed between the case cover 23 and the regulating plate 90. The spring 31 is accommodated in a recess 32 in a central top portion of the regulating plate 90. The regulating plate 90 is biased along the engagement pins 30a, 30b, 30c and 30d towards the guide plate 75 by the resilient force of the spring 31. The mounting section 90b extends up above the stationary shaft 72, and the gap adjusting screw 26 is mounted on an extending end portion of the mounting section 90b.

The lower end of the sheet regulating section 90a is formed with a flat and smooth sheet regulating surface 90c. The regulating surface 90c cooperates with the guiding surface 27a of the guide plate 75 to regulate the position of the sheet surface of the magnetic sheet 3 in the vertical direction. The adjustment of the height of the regulating plate 90 with respect to the guide plate 75 is made with respect to three points, that is the end 72a of the stationary shaft 72 which is in contact with the lower end face of the gap adjusting screw 26 screwed in the mounting section 90b, and the level regulating pins 77 which are in contact with the lower end faces 33a and 34a of the two gap adjusting screws 33 and 34 screwed in the rear portion of the mounting section 90b.

The gap adjusting screws 26, 33 and 34 are provided on the regulating plate 90 for adjusting the gap of the guiding surface 27a of the guide plate 75 and the magnetic head H with respect to the sheet regulating surface 90c of the regulating plate 90 facing them. The individual gap adjusting screws 26, 33 and 34 are adjustable from the upper side (the side of the case cover 23) of the cassette holder 21 opposite to the regulating plate 90. To this end, the case cover 23 is formed at positions corresponding to the gap adjusting screws 26, 33 and 34 with screwdriver insertion holes 59a, 59b and 59c into which a screwdriver or the like may be inserted for tightening or loosening the screws 26, 33 and 34.

A leaf spring 60 is secured by bolts 61 to the inner wall of the case cover 23 for the purpose of holding the frame 52 spaced apart by a predetermined distance from the case cover 23 so that the jacket 1 can be readily inserted through a cassette insertion hole 52e. The sheet regulating

surface 90c is formed in its central portion facing the guiding surface 27a with a semicircular groove 35 which is used to provide an escapement space for the magnetic sheet 3 in frictional contact with the magnetic head H. The sheet regulating surface 90c has an arcularly chamfered edge 90d.

Between the groove 35 of the regulating plate 90 and the gap adjusting screw 26, a detecting coil accommodating section 36 having a substantially figure-of-eight shape is formed by two through holes 36a and 36b. In the section 36 a detecting coil 37 is provided. In the central portion of the detecting coil 37, a yoke 39 is mounted on a plate-like support member 38 so as to extend into the through hole 36a. The support member 38 is secured by bolts 40a to the regulating plate 90, and lead wires 41a, 41b, ... for leading the output detected by the detecting coil 37 to an associated electronic circuit, are soldered at one end to the upper surface of the support member 38.

The detecting coil 37 serves to detect the rotating detecting pin 13 as described later. The detecting coil 37 is provided on the regulating plate 90 because the regulating plate 90 is positioned with high precision with respect to the guide plate 75 by the level regulation pins 77, so the rotational phase can be detected with high precision.

The annular magnetic member 11 attached to the centre hub 6 of the magnetic sheet 3 is positioned to face an annular magnet 43 integral with the turntable 70 rotating about the stationary shaft 72 at high speed, as shown in Figure 6. Thus, when the turntable 70 is rotated, the magnetic sheet 3 is rotated in the same direction together with a magnetic member 42 which is attracted to the annular magnet 43.

The jacket 1 may be mounted in the magnetic recording and/or reproducing apparatus in the following way.

In the first place, the jacket 1 is inserted into the cassette holder 21 which is positioned in the cassette receiving position shown in Figure 5. At this time, a lid 5 is pushed out from the window 4 by a lid opening member 46 extending into the cassette holder 21 from one side thereof. Thus, the magnetic sheet 3 is partly exposed through the window 4. After the jacket 1 has been pushed into the cassette holder 21 to a position where its front edge is brought into contact with a connection section 52f of the frame 52, the case cover 23 is pushed down with respect to the frame 52, and the jacket 1 is positioned in a predetermined position in the cassette holder 21.

At this time, the sheet regulating surface 90c of the regulating plate 90 extends into the window 4 formed in the jacket 1 from above, and thus the sheet regulating surface 90c partially faces the opposite side of the recording surface of the magnetic sheet 3.

Subsequently, when the cassette holder 21 containing the jacket 1 at the predetermined position is moved to the operative position, the stationary shaft 72 is inserted into the hole 7 formed in the centre hub 6 which is held in an aperture formed at the centre portion of the jacket 1. At the same time, the lower end faces 33a and 34a of the gap adjusting screws 33 and 34 in the mounting section 90b come into engagement with the heads 77a of the height regulating pins 77 projecting from the guide plate 75, as shown in Figure 6, while the lower end face 26a of the gap adjusting screw 26 screwed in the mounting section 90b of the regulating plate 90 is engaged with the end 72a of the stationary shaft 72. Thus, the regulating plate 90 is accurately set in position with respect to the guide plate 75 at the predetermined three points, that is, the level regulating pins 77 of the guide plate 72 and the end 72a of the stationary shaft 72.

Since the regulating plate 90 is movably mounted with respect to the cassette holder 21 it can be accurately positioned by the spring force of the spring 31 with respect to the guide plate 75 and the magnetic head H, independently of the lock position of the case cover 23 of the cassette holder 21 on the base plate 22.

When the engagement pin 58 provided on the base plate 22 is inserted and engaged in an engagement hole 23d formed in a front portion 23c of the case cover 23, the magnetic head H and guiding surface 27a of the guide plate 75 are inserted in the window 4 formed in the lower wall of the casing 2, and the magnetic sheet 3 extending in the window 4 faces the guiding surface 27a. Thus, a peripheral area of the magnetic sheet 3, with which the magnetic head H is contacted, is stably guided in a predetermined position by the sheet regulating surface 90c and the guiding surface 27a.

Then, when the turntable 70 is rotated with the magnetic head H in contact with the magnetic sheet 3, the annular magnet 43 on the turntable 70 and the magnetic member 42 on the magnetic sheet 3 are magnetically coupled, and the magnetic sheet 3 is rotated in synchronism with and in the same direction as the turntable 70. When the magnetic sheet 3 is rotated, the detecting pin 13 is rotated past the underside of the detecting coil 37,

the detecting coil 37 being provided on the regulating plate 90 at a position thereof corresponding to the detecting pin 13, as shown in Figure 9. Since the magnetic flux from the annular magnet 43 intersects the detecting pin 13, a magnetic field different from the other portions is formed above the detecting pin 13. Thus, every time the detecting pin 13 approaches the detecting coil 37, a predetermined pulse-like signal is generated by electromagnetic induction caused by the magnetic field. In this way, the pulse-like signal is periodically produced according to the speed of the turntable 70 from the detecting coil 37 every time the turntable 70 completes one rotation. Thus, the periodic signal can be used for adjusting the rotational phase of the turntable 70 and the magnetic sheet simply and reliably. Moreover, as the detecting coil 37 is provided on the regulating plate 90, which is precisely positioned with respect to the guide plate 75 and the stationary shaft 72, the detecting coil 37 can be positioned at a desired distance from the detecting pin 13 in the centre hub 6 of the magnetic sheet 3. Thus, the detecting pin 13 can be detected with high precision using the detecting coil 37.

When the turntable 70 is rotated at high speed, causing the rotation of the magnetic sheet 3 in the same direction, still image information, for example, is magnetically recorded so as to form circular recording tracks on the magnetic sheet 3. Immediately after a field of the image information has been recorded with the completion of one rotation of the magnetic sheet 3, the head operating section 80 is driven automatically to feed the magnetic head H to the track position adjacent to the recorded track, while at the same time the track number display mechanism 19 on the casing 2 is rotated by a rotating pin 50 mounted on the base plate 22, whereby a position "1" on a scale 18 is indicated by an index section 50a provided on the pin 50. Thus, the current recording track number can be visually confirmed as the position of the index section 50a pointing to the relevant position of the scale 18.

In this way, after completion of the recording of the information signal in one circular track, the magnetic head H is shifted in the radial direction to the adjacent circular track position by the head operating section 80 for effecting magnetic recording of the given information as in the adjacent circular magnetic track.

The adjustment of the gap of the sheet regulating surface 90c with

respect to the guiding surface 27a of the guide plate 75 and the magnetic head H, may be effected by advancing or withdrawing the gap adjusting screws 26, 33 and 34 with a screwdriver or the like inserted through the holes 59a, 59b and 59c. Thus, the optimum position of the regulating plate 90 with respect to the guide plate 75 can be readily and quickly adjusted. The adjustment of the gap adjusting screws 26, 33 and 34 can be made from outside the case cover 23, which means that the adjustment can be made either after the jacket 1 is mounted in the magnetic recording and/or reproducing apparatus or during the rotation of the magnetic sheet 3. Moreover, since the detecting coil 37 is mounted on the regulating plate 90, the distance between the detecting coil 37 and the detecting pin 44 may readily be adjusted by adjusting the gap adjusting screws 26, 33 and 34.

Figure 10 is a sectional view on the line V-V in Figure 8, and shows a construction of a head block. The magnetic head H is mounted on a rising portion of the head slider 29 which is extended towards the head window 76 of the stem block 28. The head slider 29 is provided with a hole 84 and a recess 85 which are respectively formed at the ends thereof. A pair of guide pins 86 mounted on the movable arm 81 are inserted through the hole 84 and the recess 85, respectively, such that the head slider 29 will be movable upwardly and downwardly along the guide pins 86. A plate spring 87 is provided between the head slider 29 and the movable arm 81. The spring 87 serves to urge the head slider 29 towards the the stem block 28, and thereby the head slider 29 is pressed against the guide surface 28d of the stem block 28 such that the head slider 29 is guided on the guide surface 28d when the movable arm 81 is rotated around the pin 82a. As described before, the guide surface 28d of the stem block 28 is formed parallel to the guiding surface 27a thereof, so that the magnetic head H moves parallel to the guiding surface 27a, that is, to the magnetic sheet 3.

Figures 11 and 12 show another example of the head assembly which is preferably used for recording colour component signals, such as R, G and B signals or Y, R-Y and B-Y signals, on separate tracks. In the figures, the same references as used in Figures 5 to 8 are used for corresponding elements in the head assembly. The head assembly is provided with the head slider 29 as a whole formed in staple-shaped configuration, and an upper portion of the staple-shaped slider 29 is divided by the arms 29c, 29d and 29e. The respective arms 29c, 29d and 29e have rising portions 29c', 29d'

and 29e' at their ends, to which the magnetic heads H are attached. The head slider 29 has slidable portions 29a and 29b which are formed at both ends on the upper surface of the head slider 29. The head slider 29 is arranged such that the slidable portions 29a and 29b contact the guide surfaces 28d and 28e of the stem block 28 in the same manner as shown in Figure 10. At a bottom surface of the head slider 29, a plate spring 87 is attached to connect the head slider 29 with the movable arm 81 and thereby the head slider 29 will be urged towards the stem block 28. As a result, when the movable arm 81 is moved by the head shifting mechanism, the head slider 29 moves while being guided by the guide surfaces 28d and 28e of the stem block 28. This means that since the guide surface 28d and 28e of the stem block 28 are formed parallel to the guiding surface 27a thereof, the magnetic head H can move parallel to the guiding surface 27a.

CLAIMS

1. Apparatus for recording and/or reproducing information on a flexible magnetic disc contained in a jacket, the apparatus comprising:
means for rotating said flexible magnetic disc at a predetermined rotational speed;
magnetic transducer means to be positioned in contacting relation with one surface of said flexible magnetic disc through a first cut-out of said jacket;
regulating plate means movable between an operative position and an inoperative position, said regulating plate means having a first guiding surface which in said operative position of said regulating plate means is inserted into said jacket through a second cut-out opposite to said first cut-out so that said first guiding surface is then positioned close to the other surface of said flexible magnetic disc, and movement of said regulating plate from said operative position to said inoperative position removing said regulating plate means from said second cut-out of said jacket;
positioning plate means positioned in facing relation to said regulating plate means, and having a second guiding surface which in said operative position of said regulating plate means is spaced a predetermined distance from said first guiding surface; and
means for adjusting the position of said regulating plate means when said regulating plate means is in said operative position to enable said regulating plate means to be set in the optimum position relative to said positioning plate means.

2. Apparatus according to claim 1 wherein said first guiding surface has a groove extending in the radial direction of said flexible magnetic disc, and said magnetic transducer means is movable in the lengthwise direction of said groove for scanning a plurality of recording tracks on said flexible magnetic disc.

3. Apparatus according to claim 1 or claim 2 wherein said positioning plate means has positioning pins for determining said predetermined distance between said first guiding surface and said second guiding surface.

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4. Apparatus according to claim 3 wherein said flexible magnetic disc has a centre hub, through which a driving shaft of said rotating means is inserted for centring said flexible magnetic disc.

5. Apparatus according to claim 1 wherein said regulating plate means is mounted on an arm which is rotatably hinged to a chassis of the apparatus, and when said jacket is to be installed in the apparatus, said arm is moved so moving said regulating plate means away from an operative position.

6. Apparatus according to claim 4 wherein said driving shaft has a rotating shaft and a fixed shaft, and said regulating plate means is also positioned by said fixed shaft of said driving shaft.

7. Apparatus according to claim 6 wherein said regulating plate means is mounted on an arm which is rotatably hinged to a frame of the apparatus, and when said arm is in an operative position, said guide plate means is precisely positioned by said fixed shaft and said positioning pins.

9. Apparatus for recording and/or reproducing information on a flexible magnetic disc, said apparatus being substantially as hereinbefore described with reference to the accompanying drawings.