

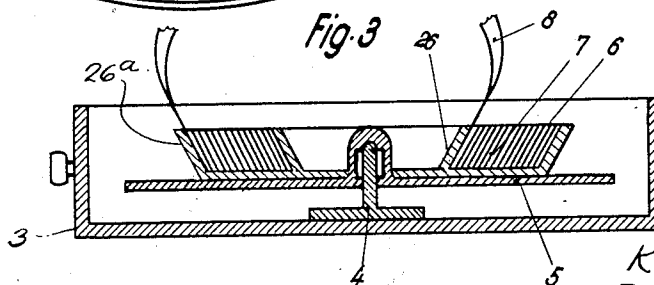
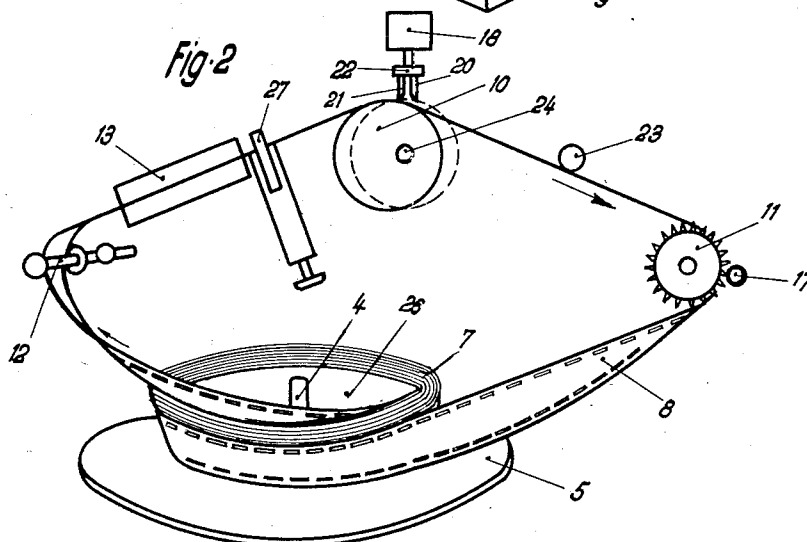
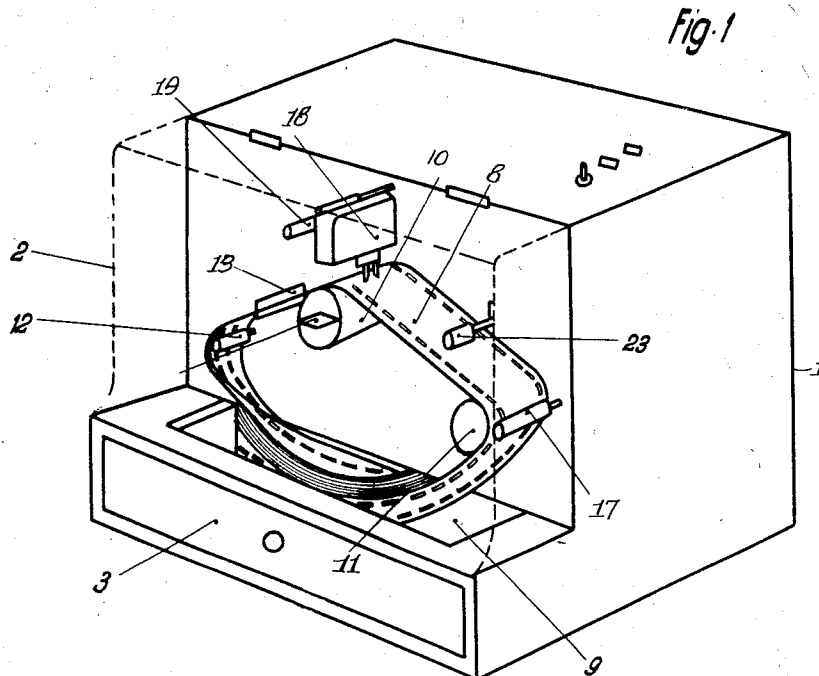
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SOUND RECORD CARRIER

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SOUND RECORD CARRIER

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5 Claims. (Cl. 242—55)

This invention relates to a sound recording and sound reproducing device having an endless band-shaped sound record carrier rolled up into a roll and arranged on a horizontal rotatable support.

In known devices of this kind difficulties arise with respect to insuring satisfactory motion of the sound record carrier and perfect guiding of the roll.

The invention proposes to eliminate these difficulties by employing as support for the roll a plate rotatable about a vertical axis and fitted with an inner guide ring the walls of which diverge upwards according to the direction of motion of the sound record carrier when running off from the roll. The arrangement of an inner guide ring which turns with the plate and the roll prevents harmful friction and deformation of the roll during motion of the sound record carrier.

Furthermore, the inner guide ring is not placed on the plate directly but in a cylindrical box which receives the sound carrier roll and, with the latter, is disposed on the plate. In this manner it becomes possible to employ for instance the same box in which the sound record carrier is sold for this purpose, the box being ready for operation after removal of its cover and after the loop has been drawn out of the roll and passed over the guide wheels and the recording or reproducing path. The insertion of the sound record carrier, which is so important for practical use, is thus greatly facilitated. To insure compactness of the device without interfering with the insertion of the sound record carrier the plate is arranged in a drawer of the device.

By way of example, the invention is illustrated in the accompanying drawing, in which Figure 1 is a total view of the device according to the invention; Fig. 2, a diagrammatic view of the bearing and guiding of the sound record carrier; and Fig. 3 is a modification, being a vertical longitudinal section of the drawer of the device.

Referring to the drawing, the device is enclosed in a casing 1, the front part 2 of which, shown in dotted lines, can be turned up so as to expose to view both the sound record carrier and the sound box. The lower part of the casing 1 is occupied by a drawer 3 which can be drawn out towards the front. In the drawer 3 a vertical axle 4 is provided around which a horizontal plate or turntable 5 is adapted to turn.

In the construction shown in Fig. 2 the plate 5 is fitted with a non-rotatable inner guide ring 26 the walls of which incline outwardly from below up.

In the construction according to Fig. 3 the plate

5 supports a circular box 6 which is open on top and in the annular chamber of which the sound record carrier rolled up into a roll 7 is positioned. The inner wall 26 and the outer wall 26a of the annular chamber are outwardly inclined from the lower to the upper part, so that the guide ring 26 shown in Fig. 2 is a part of the box 6 which rotates with the plate 5.

From the roll 7 the sound record carrier is drawn out upwardly in a loop 8 through the opening 9 of the casing and passed over the fixed slide member 10, the toothed driving roller 11 and the guide roller 12. As indicated in Fig. 3, the inclination of the guide ring 26 corresponds to the direction of motion of the sound record carrier from the roll 7.

In front of the slide member 10 the sound record carrier 8 passes over a braking path or member 13. The sound record carrier 8 is pressed by the roller 17 firmly against the driving roller 11 which is coupled to an electromotor, not shown, arranged in the casing 1. Above the fixed slide member 10 which constitutes the cutting block, the sound box 18 is disposed and can be displaced on the horizontal shaft 19 in horizontal direction transversely to the direction of motion of the sound record carrier. The sound box 18 is provided with a cutting or recording stylus 20 and a reproducing stylus 21, both styluses having a common holder 22 and being inserted in the sound box as a unit. Between the sound box 18 and the driving roller 11 a roll 23 for rolling up cuttings lightly rests on the sound record carrier and is capable of moving freely up and down as required according to the thickness of the coiled up cuttings.

As shown in Fig. 2, the cutting block 10 is eccentrically journaled in the casing by means of the shaft 24. By turning the cutting block 10 by means of the operating handle 25 through 180°, it is possible in a simple manner to establish contact either with the cutting or recording stylus 20 or with the reproducing stylus 21. The intermediate position is the zero position at which both styluses are out of engagement with the sound record carrier.

A pin 27 is elastically pressed against an edge of the sound record carrier 8 by any suitable means not shown in the drawing and after each rotation of the endless carrier drops into a recess in the edge of the carrier, whereby a contact is closed (not shown) which effects the displacement of the sound box from one sound groove to the next. This arrangement is known in prior art and is not illustrated in detail.

It is evident that the sound record roll need not be arranged absolutely horizontally but, together with its support, may be disposed approximately so without departing from the spirit of the invention.

I claim:

1. In a sound recording and sound reproducing device employing a sound record carrier having the form of an endless band provided with a wound portion; a horizontal plate rotatable about a vertical axis, means supporting said plate, an inner annular guide wall which is inclined upwardly in an outward direction, an outer annular guide wall which is concentric in relation to said inner guide wall and extends in a parallel direction, and means firmly connecting said guide walls with said plate and maintaining said guide walls upon said plate at a distance from each other to provide an annular chamber for the wound portion of the endless band.

2. An endless film holder for a sound recording and a sound reproducing device, comprising a plate for holding thereon an endless round roll of film of substantially constant diameter with an outer winding convolution and an inner unwinding convolution, said plate having a diameter at least as great as the maximum diameter of said roll, means mounting said plate for rotation for rotating said roll thereby, guide means rotatable with said plate and positively secured thereon concentrically to the axis of rotation of said plate and inwardly of said roll and presenting surface means diverging outwardly from the center of said plate at an angle substantially equal to the angle taken by the film unwound from said inner convolution, and bearing against said inner convolution to prevent deformation of said roll from its round shape during the simultaneous winding and unwinding thereof, said plate having an unobstructed supporting surface between said outer convolution and said guide means, all roll engaging parts of which are located in the same plane for allowing smooth passage of said outer convolution to said inner convolution adjacent said guide means, and said guide means having an effective height terminating at a distance from the plate substantially equal to the width of said roll whereby said roll is rotated by said plate with said inner convolution leaving said roll substantially tangentially of said guide means and the radial extent of said roll is maintained substantially constant without binding.

3. An endless film holder as in claim 2, said guide means comprising an annular substantially ring-like member secured to said plate, said member having an outer surface in the form of an inverted truncated cone the maximum and minimum diameters of which give said surface an inclination equal to that of said inner convolution of said roll of film carried by said plate during the unwinding of said inner convolution.

4. In a sound recording and sound reproducing device, an endless film holder comprising a plate having an axis of rotation substantially perpendicular to said plate, an endless roll of film supported upon said plate and having an outer winding convolution and an inner unwinding convolution, guide means secured to said plate and concentric with said axis of rotation, said guide means diverging outwardly from the surface of said plate at an angle substantially equal to the angle taken by said film when pulled tangentially outwardly from said roll, and a plurality of convolutions having an inclination given by said guide means with said inner convolution bearing against said guide means at the angle thereof throughout sufficient extent of said convolution to give substantially the entire convolution the angle of said guide means, whereby said guide means prevents deformation of said roll during the simultaneous winding and unwinding thereof.

5. In a sound recording and sound reproducing device, an endless film holder comprising a plate, an endless roll of film supported upon said plate and having an outer winding convolution and an inner unwinding convolution, guide means secured to said plate concentrically thereof and inwardly of said roll and presenting surface means diverging outwardly from the center of said plate at an angle substantially equal to the angle of film tangentially unwound from the inner convolution of said roll, and at least some of the inner convolutions of said roll being inclined at the inclination of said surface means with the inner convolution bearing against said surface means throughout sufficient extent of said convolution to give substantially the entire convolution the angle of said surface means during the simultaneous winding and unwinding of said roll, whereby the radial extent of said roll remains substantially constant and deformation of said roll is prevented.

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