Feb. 9, 1937. H. C. HARRISON 2,069,827

RECORD CLAMPING MEANS

Filed Jan. 23, 1936

FIG. 1

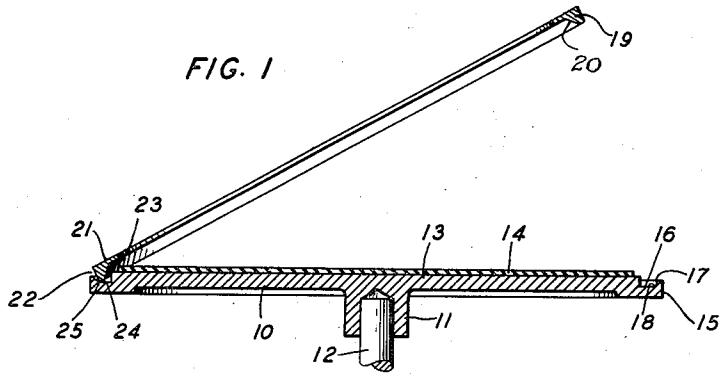


FIG. 2

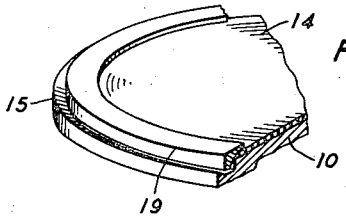


FIG. 3

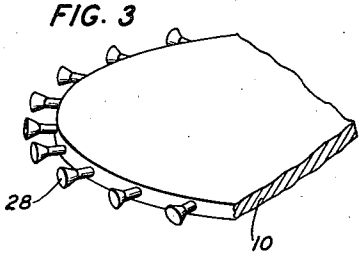


FIG. 4

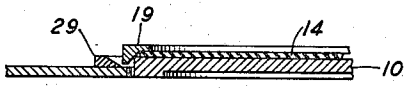
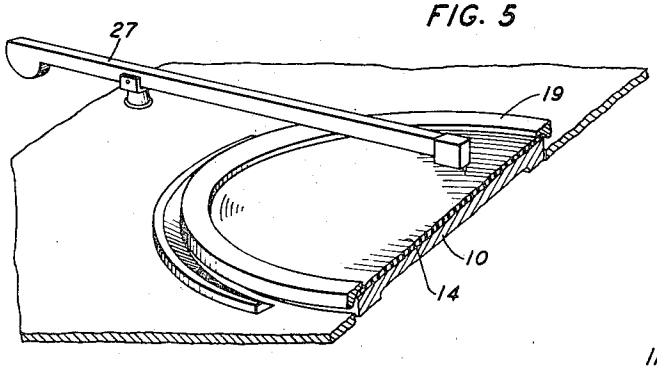


FIG. 5



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RECORD CLAMPING MEANS

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7 Claims. (Cl. 274—39)

This invention relates to means for holding discs in engagement with turntables. For purposes of illustration it will be described with respect to flexible disc records, but the invention is not limited to such use.

It is known that thin, flexible disc records are generally unsatisfactory because of their tendency to warp and slip. It has been proposed to overcome this difficulty by supplying the turntable with a ring which clamps the record securely to the turntable. Such rings are objectionable, however because both hands must be used to raise them from the record, and a space must be provided upon which the ring may be placed each time the record is to be changed. Furthermore, unless such rings are accurately machined to fit the turntable, difficulty is experienced in centering them to avoid unbalancing the turntable and the consequent variation in speed resulting therefrom.

The object of this invention is to provide a simple, inexpensive clamping ring for a disc, which is capable of being raised, lowered and centered with the use of but one hand, and a minimum number of movements thereof.

A feature of this invention is a clamping ring which, when lowered upon the turntable, not only centers itself, but centers the record as well.

In its preferred form this invention comprises a clamping ring adapted to engage the peripheries of a turntable and a disc record located thereon, the engaging surface being conical to provide a plurality of progressively smaller circles one of which circles coincides with the edge of the turntable, and another of which coincides with the edge of the record. A flat surface may also be provided to increase the pressure upon the record. Pivoting means are provided by which the ring may be raised from the surface of the record to permit the removal thereof from the turntable. The pivoting means is such that the ring may be raised from any point on the turntable.

For a better understanding of the invention reference may be made to the accompanying drawing which forms a part of this specification, wherein—

Fig. 1 is an elevation in section of a ring and turntable showing the novel centering surface of the ring and the pivoting means on the turntable;

Fig. 2 is a fragmental plan view of the turntable showing the pivoting means of Fig. 1;

Fig. 3 is a plan view of a modification of the pivoting means;

Fig. 4 is still another modification of the pivoting means wherein the means is located externally to the turntable; and

Fig. 5 is a corresponding plan view of the pivoting means of Fig. 4.

Referring now to Fig. 1, 10 is a turntable provided with a hub 11 which engages drive shaft 12. The surface 13 of turntable 10 is adapted to receive a thin flexible record 14, the thickness of which is shown exaggerated for purposes of illustration. Extending around the periphery of turntable 10 is a ledge 15, the upper surface of which contains a flat portion 16 and an inclined portion 17, the intersection of which forms an obtuse corner 18.

The novel ring is shown at 19 and it comprises an annulus having a somewhat triangular cross-section formed by conical surface 20, plane surface 21 and cylindrical surface 22. Conical surface 20 is preferably intercepted by an inner plane surface 23 and a lower plane surface 24. The intersection of plane surface 24 with cylindrical surface 22 forms a relatively acute corner 25. When ring 19 is placed upon the turntable, conical surface 20 normally bears against the upper edges of both record 14 and turntable 10, but no part of ring 19 touches ledge 15.

When it is desired to remove record 14 from turntable 10, ring 19 is raised at one end, which causes the diametrically opposed portion of cone 20 to rotate about the upper edge of turntable 10 until corner 25 strikes surface 16 of ledge 15, whereupon it is slid along surface 16 until it strikes corner 18. The slope of surface 17 is steep enough to arrest further motion of ring 19, and hence thereafter ring 19 simply pivots about its corner 25. With ring 19 in raised position the record then on the turntable may be removed and replaced by another. The new record is simply placed with its edge against conical surface 20 of ring 19 and then dropped, together with the ring, upon the turntable. As ring 19 descends, conical surface 20 adjusts the position of the new record with respect to the turntable until the two are concentric, and in addition centers the ring.

Fig. 2 shows the plan view of continuous ledge 15, ring 19 and the position of the ring with respect to record 14, turntable 10 and ledge 15.

A modification of ledge 15 is shown in Fig. 3. In this modification pins 28, preferably spaced equidistantly about the periphery of turntable 10, are used instead of a continuous ledge. Each pin is enlarged at its free end to provide a head against which ring 19 may rest and pivot.

A second modification of ledge **15** is shown in Fig. 4. In this modification the pivoting means **29** is stationary and entirely separate from the turntable. It is preferably located adjacent the turntable, though not touching it, and upon the base plate or top of the phonograph cabinet. It is placed directly opposite the point from which records will be inserted and removed by the operator. The plan view of Fig. 5 shows the approximate length of the pivoting means and its location with respect to the turntable **10** and a pivoted sound translating device **27**.

In all of the above modifications the same ring may be used. If desired, the inner surface of the ring may be modified so that the conical portion engages the edge of the turntable only and the record is engaged by plane surface **23** instead. Plane surface **21** and cylindrical surface **22** may also be modified, but it is preferred that a relatively sharp corner such as **25** be used, and that the corner **25** touches the pivoting means only when the ring is raised.

If the record, turntable and ring are properly dimensioned, the record-centering properties of the ring may be sufficient to dispense with the centering pin commonly used with the disc type of record. The removal of the pin expedites the placing of the record upon the turntable and eliminates the annoying hunt for the aperture in the record. By providing a pivoting means for the ring the operation of the ring becomes more uniform and the operator is left with one hand free with which he may change the record or perform any other operations necessary to the proper functioning of the phonograph.

It is understood that the foregoing description is merely illustrative of the preferred embodiments of this invention, and that the scope of the invention, therefore, is not to be limited thereto but is to be determined by the appended claims.

What is claimed is:

1. Means for holding a disc upon a turntable, said means comprising a ring having a flat surface normally parallel to the surface of the turntable, and a surface normally inclined to the surface of the turntable, said inclined surface being used to center the disc upon the turntable, and said flat surface being used to maintain the disc in contact with the turntable.

2. The combination with a turntable and a flexible record to be driven by the turntable, of means for holding the record upon the turntable, said means comprising a heavy ring having a flat surface normally in contact with the surface of the record and a conical surface normally in contact with the edge of the record and the edge of the turntable, said flat surface serving to hold the record upon the turntable, and said conical surface serving to center the record upon the turntable.

3. A turntable for supporting and rotating a disc, pins extending radially from the periphery of the turntable, a ring for holding a record upon the turntable, and an edge on the ring adapted to contact a plurality of said pins and act as a fulcrum, whereby the ring may be lifted off the record by raising said ring at any point on its periphery.

4. A turntable for supporting and rotating a disc, a ledge on the turntable, a ring for holding a disc on the turntable and an edge on the ring adapted to contact the ledge when the opposite point on the ring is raised to allow the disc to be removed from the turntable without completely removing the ring.

5. A turntable for supporting and rotating a phonograph record, a ring for holding the record against the turntable, said ring having a flat surface for contacting the surface of the record and a conical surface for contacting the edge of the record whereby the record may be centered upon the turntable, an extension on the periphery of the turntable, an edge on the ring adapted to be supported by said extension when one point on the ring is raised so that a disc may be removed from the turntable from any side thereof.

6. Means for centering a disc upon a turntable, said means comprising a ring having a conical inner surface adapted to contact the edge of the disc and the edge of the turntable, said conical surface cooperating with the edge of the disc to move it laterally until the edge is concentric with the edge of the turntable.

7. Means for centering a phonograph record upon a turntable, said means comprising a ring concentric with the turntable and having a conical inner surface in contact with the edge of the record by which the record is moved laterally until its edge is concentric with the turntable.

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