April 18, 1933. R. F. MALLINA 1,904,490

TURNTABLE FOR PHONOGRAPHS

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FIG. 1

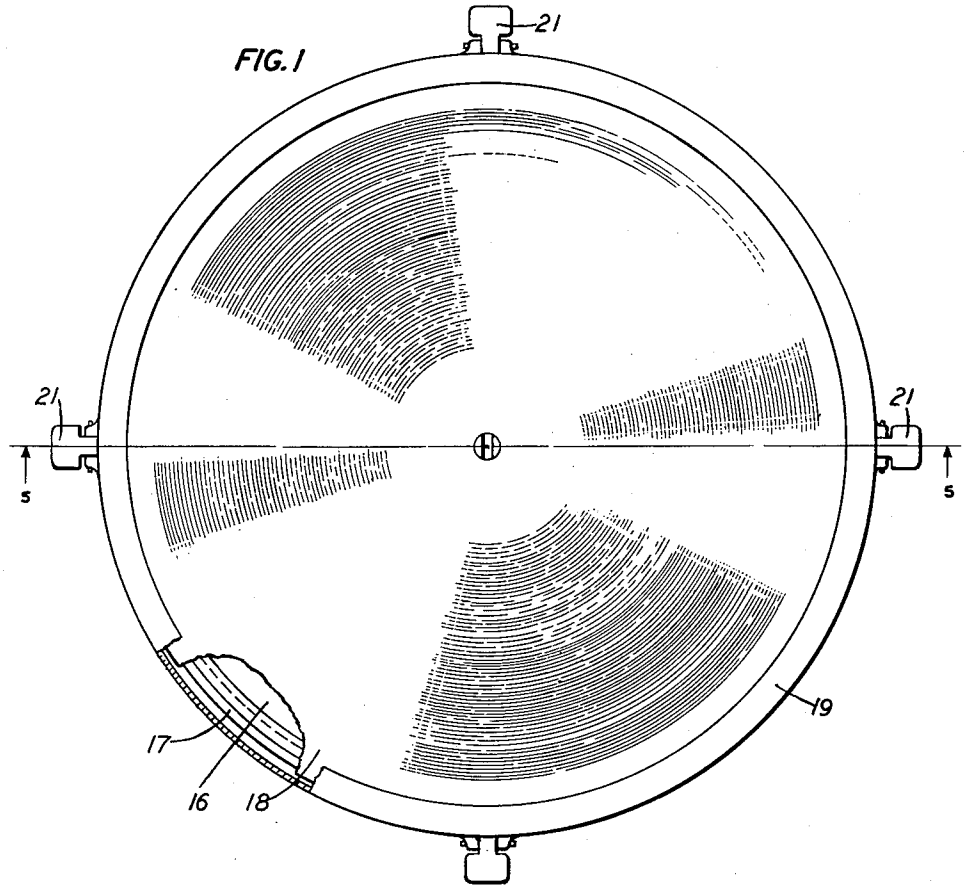
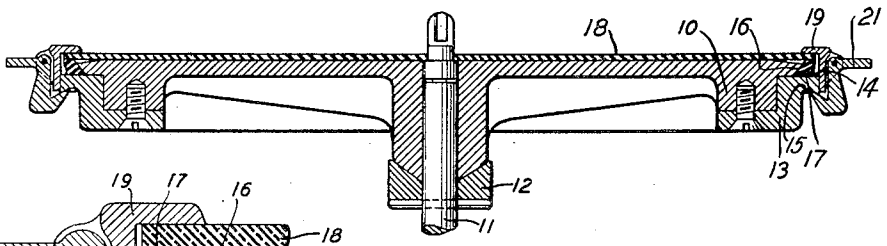


FIG. 2



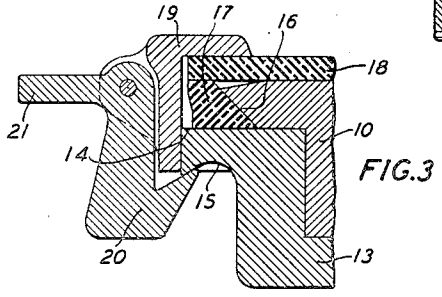


FIG. 3

INVENTOR
R. F. MALLINA
BY
ATTORNEY

April 18, 1933. R. F. MALLINA 1,904,490

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FIG. 4

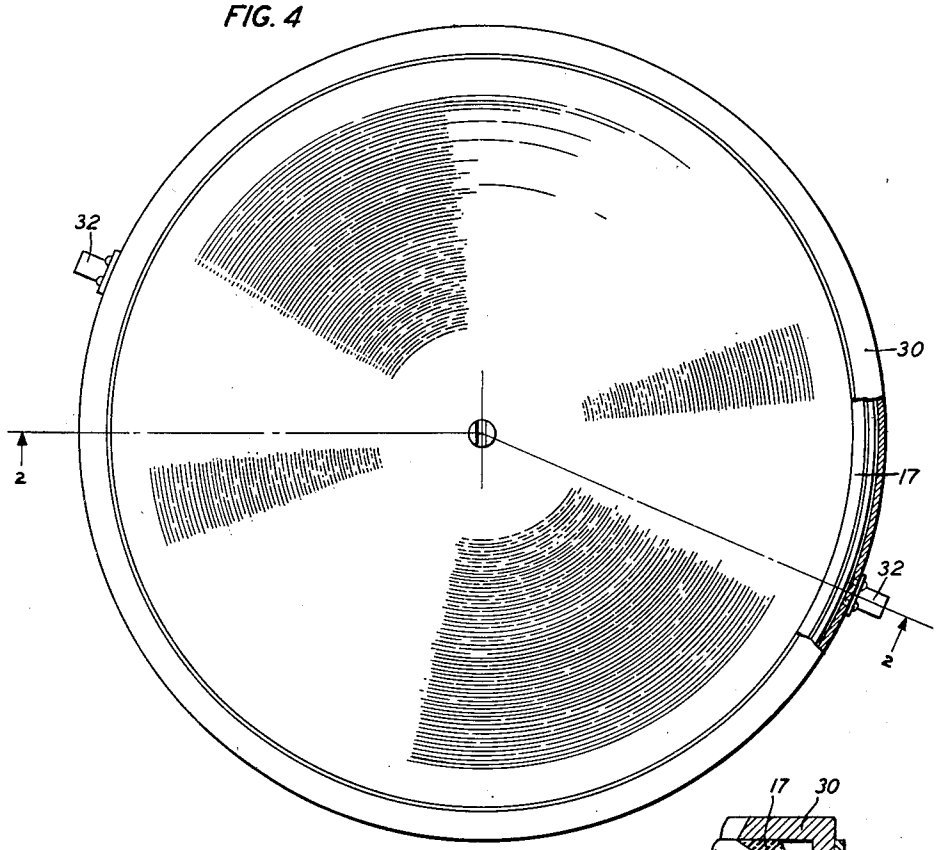


FIG. 6

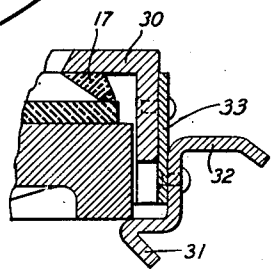
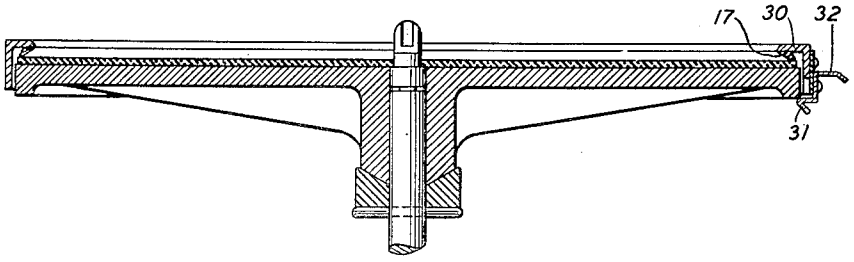


FIG. 5



INVENTOR
R. F. MALLINA
BY G. M. Campbell
ATTORNEY

Patented Apr. 18, 1933 1,904,490

UNITED STATES PATENT OFFICE

RUDOLPH F. MALLINA, OF NEW YORK, N. Y., ASSIGNOR TO BELL TELEPHONE LABORATORIES, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

TURNTABLE FOR PHONOGRAPHS

Application filed November 19, 1931. Serial No. 576,002.

This invention relates to phonographs and more particularly to devices for holding thin disc records in proper playing position on the turntable of a phonograph.

The object of the invention is a record stretching and clamping device of simple and inexpensive construction which is easy to operate and which will maintain thin flexible records in a flat position on the turntable.

This device consists essentially of a ring of resilient material contacting the periphery of the record and adapted, when compressed by the record clamping ring, to move outwardly from the center of the turntable and by frictional contact to exert a radial tension on the record. In one form of the invention the stretching ring is of rubber of triangular cross-section secured to the turntable and projecting upwardly from its surface slightly to engage the rim of the record. A thin clamping ring is applied to the upper side of the record and is held in place by suitable catches.

In another form the stretching ring is made integral with the clamping ring, such a device being readily applicable to standard turntables.

Both forms are shown in the accompanying drawings in which:

Figs. 1 and 2 are a plan and sectioned elevation respectively of a turntable and ring where the ring is integral with the turntable;

Fig. 3 is an enlarged section through the ring and turntable;

Figs. 4 and 5 are a plan and sectioned elevation respectively of a turntable and ring where the ring is not integral with the turntable but is secured to the clamping ring instead for adaptation to the standard type of turntable; and

Fig. 6 is the corresponding enlarged section through the ring and turntable.

Referring now to Figs. 1, 2 and 3, 10 is a turntable driven from shaft 11 through a friction drive 12. On the underside of the turntable 10 is a heavy metal ring 13 with a projecting ledge 14 and a V-shaped groove 15 under the ledge 14. The turntable is undercut at 16 to receive a triangular resilient ring 17 preferably made of rubber and extending slightly above the surface of the turntable. The cross-section of the ring resembles a trapezoid but it may take other forms having a point of application of pressure eccentric to the center of gravity of the section so that when pressure is applied to its upper surface a turning moment is established which tends to deflect the surface outward and increase the eccentricity, thus providing a lateral force component which may be used to stretch a record. A flexible record 18 rests on the resilient ring 17 and is pressed down on the turntable by a flat metal ring 19, the resilient ring 17 being thereby deformed until its height is reduced to the level of the turntable. As the ring 17 is deformed, the surface of the ring 17 in contact with the record is deflected outward, pulling the record with it through the frictional force between the rubber and record, and the record is then not only clamped securely to the turntable, but is tensioned radially as well, both of which effects serve to produce a plane surface in the record. Four pivoted hooks 20 serve as catches to hold the ring 19 against the record.

To use a turntable of this type a flexible record is threaded over the shaft in the usual manner until it rests on the resilient ring 17. The clamping ring 19 is slipped over the record and pressed downward until the hooks 20 latch into the recessed edge 15. The surface of the turntable immediately under the ring 19 may be cut away slightly to permit the ring to be depressed below its normal level and allow the hooks to be latched or released. Under normal operating conditions, however, the record will be flat over its entire surface. To release the hooks each one is simply rotated about its pivot by means of the flat portion 21 which rotation unlatches them and permits the ring 19 to be lifted off the record and the record to be removed and replaced with another.

In the form for standard turntables shown in Figs. 4, 5 and 6, 30 is a clamping ring

similar to ring 19 of Fig. 1 to which are fastened spring clamps 31, shaped as shown in Figs. 4 and 6, through an intermediate member 33, with portions 32 serving as handles by which the device can be placed on or removed from the turntable. The resilient ring 17 is used in an inverted position with the flat base secured to the clamping ring 30 and the narrow portion contacting the record. It is placed over the record much in the same manner as ring 19 of Figs. 1 and 2, with the springs 31 automatically latching under the turntable when the ring is sufficiently depressed.

The two forms just described merely illustrate preferred embodiments of the invention and it is understood that other forms can be constructed without departing from the scope of the invention.

What is claimed is:

1. The combination with a thin, disc type phonograph record having a tendency to warp and a turntable for supporting the record, of a ring of resilient material adjacent the periphery of the record and adapted to remove irregularities in the surface of the record, and means for maintaining a pressure between the ring and the record for clamping the record.

2. The combination with a thin, disc type phonograph record having a tendency to warp and a turntable for supporting the record, of means for clamping the periphery of the record to the turntable, and a ring of resilient material in contact with the record and shaped to exert a radial tension on the record when compressed by the clamping means whereby irregularities in the surface of the record may be removed.

3. The combination with a flexible disc type phonograph record and a turntable supporting the record, of means for holding the record in a plane position comprising resilient means in frictional contact with the periphery of the record, and means for deforming the resilient means to exert radial tension on the record.

4. The combination with a flexible disc type phonograph record and a turntable supporting the record, of a ring of resilient material on the turntable contacting the periphery of the record, and a clamping ring having catches engaging the turntable and exerting a pressure on the periphery of the record to deform the ring centrifugally and stretch the record.

5. The combination with a flexible disc type phonograph record and a turntable supporting the record, of a clamping and stretching device for the record comprising a clamping ring having catches engaging the turntable and resilient means on the ring adapted to be centrifugally deformed by frictional contact with the record.

6. The combination with a flexible disc type phonograph record and a turntable supporting the record of a ring of resilient material of trapezoidal cross-section having its lower base adhering to the turntable and its upper base in frictional contact with the record and eccentric to the center of gravity of the section, and a clamping ring for pressing the record against the resilient ring.

7. The combination with a flexible disc type phonograph record and a turntable supporting the record of means for holding the record in a plane position comprising a ring of resilient material in frictional contact with the record and means for compressing the ring against the record, the cross-section of the ring being so shaped that the line of pressure is eccentric to the center of gravity of the cross-section to secure a centrifugal force component whereby the record may be tensioned radially.

In witness whereof, I hereunto subscribe my name, this 16th day of November, 1931.

RUDOLPH F. MALLINA.