

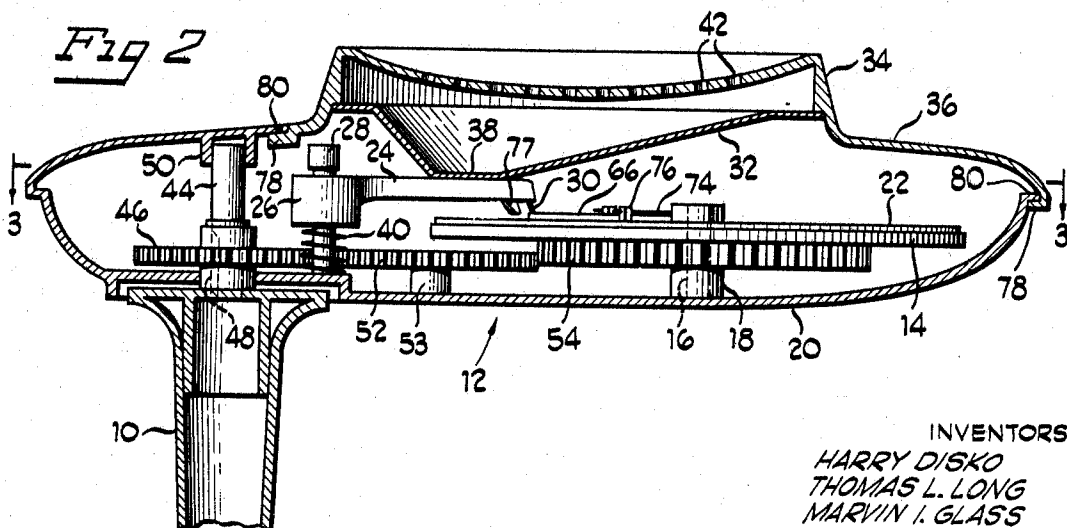
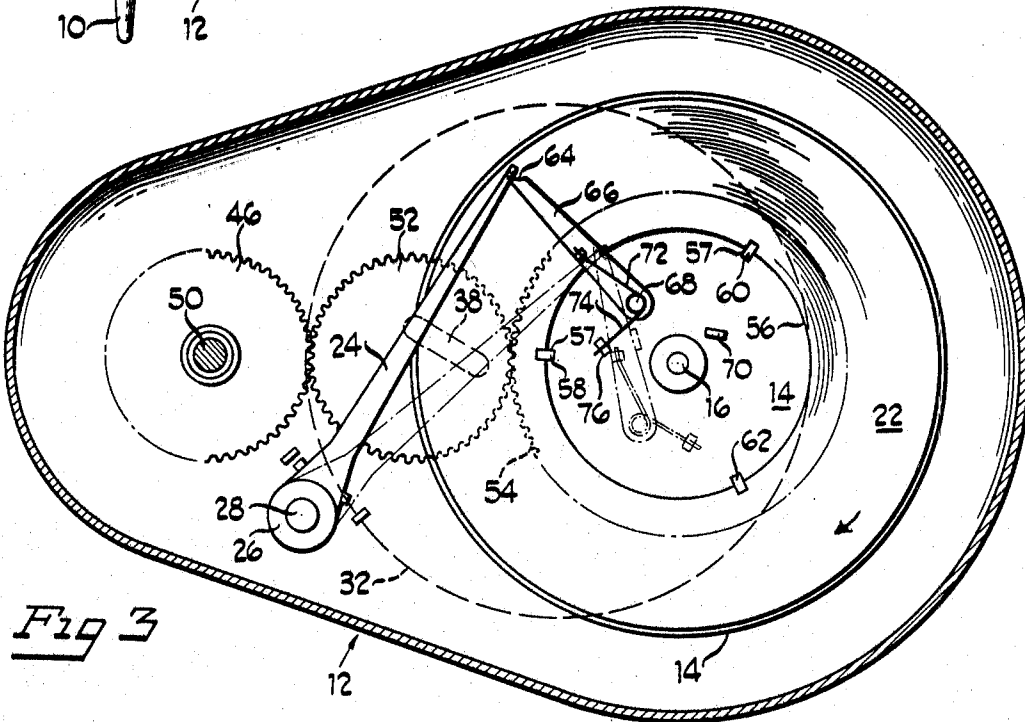
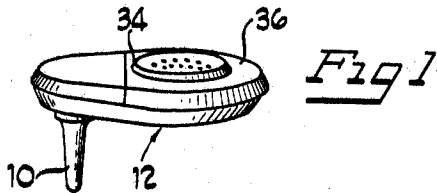
Dec. 16, 1969

H. DISKO ET AL

3,484,798

MANUALLY OPERATED PHONOGRAPH

Filed Jan. 19, 1968



INVENTORS
HARRY DISKO
THOMAS L. LONG
MARVIN I. GLASS
BY *James D. Coffey*
ATTORNEY

1

3,484,798

MANUALLY OPERATED PHONOGRAPH

Harry Disko, Park Ridge, Thomas L. Long, Arlington Heights, and Marvin I. Glass, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership

Filed Jan. 19, 1968, Ser. No. 699,068

Int. Cl. G01c 5/04, 9/22

U.S. Cl. 274—9

3 Claims

ABSTRACT OF THE DISCLOSURE

A manually operated phonograph adapted to be supported by grasping a handle projecting downwardly from the phonograph housing. The housing is eccentrically positioned on the handle and is rotatable about the axis of the handle, to thereby provide for rotation of a turntable within the housing through a gear drive means connecting the handle and turntable. A record is removably positionable on the turntable, and a repeat mechanism is provided to reposition the needle at the start of the record each time it reaches the end of the sound track on the record.

BACKGROUND OF THE INVENTION

The present invention relates generally to phonographs having acoustical sound reproducing means, and is particularly directed to such a device which is operated by whirling it about a supporting handle portion.

SUMMARY OF THE INVENTION

A phonograph device comprising a housing, a handle journaled in said housing and projecting outwardly therefrom, a record turntable mounted in said housing for rotation relative thereto, and drive means connecting said handle with said turntable, whereby the rotation of said housing about the axis of said handle is effective to produce rotation of said turntable.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is a perspective view of a device embodying the invention;

FIGURE 2 is an enlarged side elevation of the device shown in FIGURE 1 with parts broken away to show the interior; and

FIGURE 3 is a horizontal sectional view taken on the line 3—3 of FIGURE 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The phonograph device, as seen in FIGURE 1, comprises a handle portion 10 by which the device is supported when in operation and which has pivoted thereto an offset housing portion 12. The structure is shown with handle 10 in a vertical position and for convenience will be so described, although it is contemplated that it will operate in any position and would often be operated in other positions than with handle 10 so located.

Housing 12 contains a turntable 14 (FIGURES 2 and 3) disposed horizontally and journaled or supported for rotation on a pin 16 fixed in a boss 18 rigid with the floor or lower shell portion 20 of housing 12. Turntable 14 has a replaceable record 22 thereon, and a tone arm 24 has a hub portion 26 slidably journaled on a vertical pin 28 fixed on a portion of floor 20 generally between pin 16 and handle 10. Tone arm 24 has a stylus 30 which is gently pressed against record 22 by the downward pressure of a speaker cone or diaphragm 32 carried in a frame portion 34 fixed to or forming part of a cover or upper shell portion 36. Diaphragm 32 is preferably unsymmetrical in character, having an offset apex or contact area 38 which

2

is elongated in the direction of the swinging movement of tone arm 24 and positioned to insure firm but yielding contact of stylus 30 with record 22. A coil spring 40 positioned on pin 28 beneath hub 26 urges the pivot portion of tone arm 24 in a direction away from record 22 and thereby cooperates with diaphragm 32 in providing a predetermined amount of pressure between stylus 30 and record 22.

In a device of this class record 22 is made with a deeper groove than common in high fidelity equipment, and preferably is of the vertically modulated type. The record groove causes vibration of tone arm 24 as a whole, when engaged by stylus 30, which vibration is transmitted by direct contact to diaphragm 32 to provide a reproduction of the sounds on the record which are emitted through perforations 42 in frame 34. Turntable 14 is rotated by a connection from handle 10. Handle 10 is preferably tubular in form and of a size to be securely and comfortably held in the hand. At the top of the handle within housing 12 is a fixed vertical pivot pin 44 on which is fixed a gear 46 having a hub 48 about which is journaled a portion of lower shell portion 20. Pin 44 also extends into a boss 50 on upper shell portion 36, so that the housing 12 as a whole is securely journaled on pin 44. In view of the offset mass of the shell and its contents, it can be readily swung or whirled about handle 10 and such action is used in driving the phonograph mechanism.

Gear 46 meshes with and drives an idler gear 52 journaled on a pin 53 fixed on lower shell portion 20, and gear 52 in turn meshes with and drives a gear 54 mounted on or forming part of turntable 14. It will now be apparent that, if handle 10 is rotated while housing 12 is held still, turntable 14 will be rotated through the several gears 46, 52 and 54. Conversely, if handle 10 is held still while housing 12 is rotated, turntable 14 will be rotated on its own axis relative to housing 12, regardless of the fact that it is also revolving about handle 10. Such motion is brought about by swinging or whirling the device as a whole about the handle, the offset weight of housing 12 causing a centrifugal force in the direction of the rotating radius extending from handle 10 outwardly through the mass of housing 12 and its contents. The downward pressure of diaphragm 32 on tone arm 24, together with the relatively deep groove in record 22, serve to prevent the escape of stylus 30 from the grooves by reason of such centrifugal force. Furthermore, record 22 has a relatively large center opening 56 including notches or keyways 57 which fit snugly about upstanding lugs or bosses 58, 60 and 62 on turntable 14 to properly center record 22 and to prevent displacement thereof except when the record is to be removed. The record therefore does not depend upon gravity to hold it in place, and the device will operate in any position and will not be displaced by the centrifugal force mentioned.

When stylus 30 reaches or approaches the end of the record groove, it is contacted and raised out of the groove and away from record 22 by the end portion 64 of a return lever 66. Lever 66 is pivoted on an upstanding pin 68 fixed on turntable 14, within opening 56 and extends generally in the direction of rotation of turntable 14 to an extent such that end portion 64 is a substantial distance farther from pin 16 than is pin 68. Lever 66 is normally yieldably maintained against a stop lug 70 on turntable 14 by a light spring having an end portion 72 engaged in any suitable manner with lever 66 and an end portion 74 reacting against a lug 76 also fixed on turntable 14. As the tone arm 24 moves toward the center of the record 22 and completes reproduction of the sounds thereon, the hook-like free end 64 of lever 66 engages an inclined lug 77 on the underside of the tone arm and raises the stylus and tone arm

off the record. In this respect it will be noted that the vertical pressure on the end of the tone arm, exerted by engagement of lever 66 with lug 77, causes the tone arm to pivot about its position of engagement with cone portion 38 and in opposition to spring 40. The contact of lever portion 64 with lug 77 is immediately followed by engagement with stylus 30, as seen in broken lines in FIGURE 3, and the rotating movement of lever 66 is halted and the lever is moved counterclockwise away from its stop 70 and toward the periphery of the record 22. At this point end portion 64 escapes from beneath stylus 30 to place the stylus in the starting groove on the record and spring portion 72 quickly returns lever 66 to its position against stop lug 70 where it will not interfere with the normal operation of the stylus.

Most of the parts of the device are preferably made of plastic and the flexibility of this material is of advantage. For example, upper shell portion 36 is provided with one or more flange portions 78 interengaged with flange portions 80 on lower shell portion 20, and when it is desired to change record 22 for another, upper shell portion 36 is sprung or distorted sufficiently to disengage flange 78 from flange 80 whereupon shell portion 36 is removed, taking with it frame 34 and diaphragm 32. This frees tone arm 24, which is raised by spring 40, and the tone arm can be moved away from the turntable. Record 22 may then be snapped off of lugs 58, 60 and 62 and a different one substituted.

In the operation of the described phonograph device it is merely necessary to place a record on turntable 14 as just described, replace upper shell member 36, and swing the device about handle 10, whereupon the relative rotation of housing 12 about gear 46 will cause rotation of gears 52 and 54 relative to housing 12, and rotation of turntable 14. As the end of record 22 is reached, arm 66 will contact stylus 30, raising it from record 22 and transporting it back to the starting point. At this point arm 66 will escape from contact with stylus 30 and be snapped back to its idle position by spring portion 72, and record 22 will be played for a second time.

It will be apparent that modifications, variations, or improvements may be made in the device disclosed without departing from the principles of this invention.

What is claimed is:

1. A phonograph device comprising a housing, a handle journaled in said housing and projecting outwardly therefrom, a record turntable mounted in said housing for rotation about an axis generally parallel to and spaced from the axis of said handle, gear drive means connecting said handle with said turntable and operable to provide for a reduction in the speed of said turntable relative to the speed of rotation of said housing as the latter is revolved about said handle, a tone arm pivotally mounted in said housing for movement through a path overlying said turntable, an acoustical amplifier cone including an apex portion in a position of engagement with said tone arm, and a stylus on the free end of said tone arm in position for engagement with a record on the turntable.

2. A phonograph device as set forth in claim 1, including spring means for maintaining said engagement between said tone arm and said amplifier cone.

3. A phonograph device as set forth in claim 2, wherein said tone arm is disposed so that an intermediate portion thereof engages said cone apex, and including means engageable with said tone arm and operable to pivot said tone arm about its position of engagement with said amplifier cone to raise the stylus relative to said turntable.

References Cited

UNITED STATES PATENTS

1,178,840	4/1916	Cassard	274—9
2,886,328	5/1959	Duncan	274—1.1
2,982,552	5/1961	Kent	274—1.1
3,282,588	11/1966	Ashmele	274—1.1

FOREIGN PATENTS

128,023	10/1900	Germany.
---------	---------	----------

LEONARD FORMAN, Primary Examiner

D. A. DEARING, Assistant Examiner

U.S. Cl. X.R.

46—15, 175; 274—1, 15