

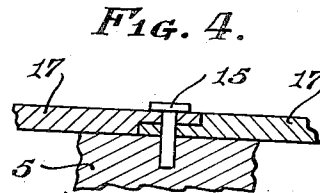
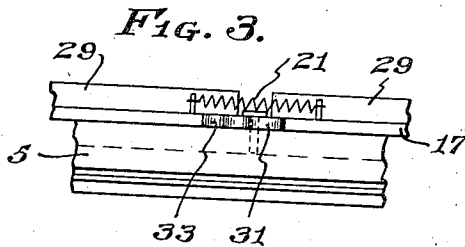
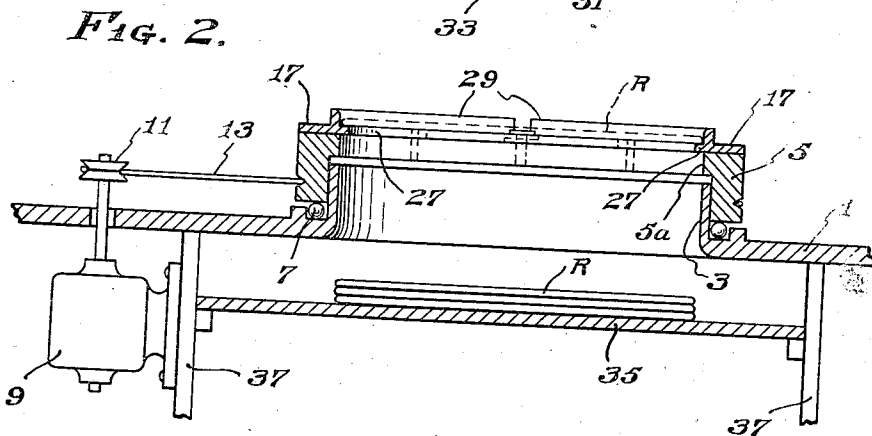
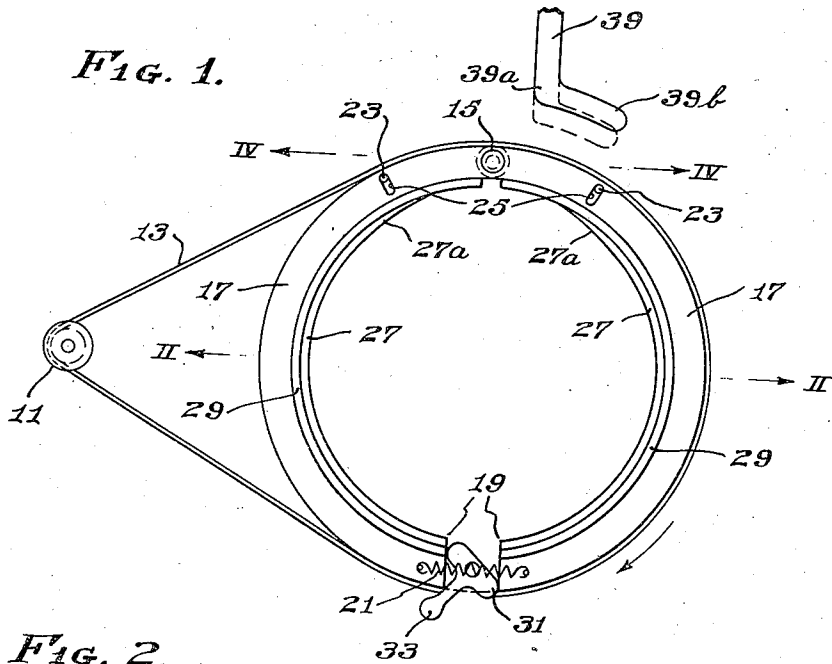
July 1, 1941.

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2,247,658

PHONOGRAPH

Filed Oct. 7, 1938



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UNITED STATES PATENT OFFICE

2,247,658

PHONOGRAPH

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Application October 7, 1938, Serial No. 233,733

16 Claims. (Cl. 274—39)

This invention relates to phonographs, and more particularly to an automatic phonograph of the type shown in the Woodward patent, No. 1,349,705, wherein a plurality of unplayed records are supported above the turntable and are successively dropped onto the turntable for playing.

In phonographs of this type, the played records accumulate upon the turntable, and thus gradually increase the load upon the driving motor. If the motor has a fixed torque, it is obvious that the speed of the successive records will be decreased gradually as the records accumulate on the turntable and the pitch of the reproduced sound will vary correspondingly from one end of the record stack to the other. To avoid this objectionable feature, means may be provided to gradually increase the torque of the motor as the number of records on the turntable increases, but this adds expense to the machine. Another difficulty with phonographs of this type is that the records on the turntable have a tendency to slip relative to each other, and the more records there are on the turntable, the greater is the slippage between the topmost record of the pile thereon and the turntable. This introduces variations in pitch of the reproduced sound which are obnoxious to the listener, and particularly to the critical listener.

The primary object of my present invention is to provide an improved automatic phonograph of the type set forth which will be free from the aforementioned difficulties.

More particularly, it is an object of my present invention to provide an improved automatic phonograph of the character referred to wherein the load on the motor will be constant regardless of how many records have been played.

Another object of my present invention is to provide an improved automatic phonograph as aforesaid on which each record may be reproduced accurately.

Still another object of my present invention is to provide, in a phonograph of the type set forth, an improved turntable on which each record is supported during playing.

A further object of my present invention is to provide an improved phonograph as aforesaid which is inexpensive of manufacture and highly efficient in use.

In accordance with my invention, I form the turntable of two or more parts which are pivotally connected together to provide a hollow, cylindrical structure, preferably arranged to be driven from a suitable motor by a belt, the turntable being mounted above a storage platform

and in axial alignment with the unplayed record stack above it. The hollow turntable is provided with an inwardly extending ledge or flange upon which the released record, or new record to be played, is dropped from the superimposed stack and upon which it is supported during playing. After the record has been played, the pivotally connected parts of the turntable are swung apart on the pivot whereupon the played record is left free to drop down onto the receiving or storage platform. The turntable parts are then reunited to record supporting position, and a new record is permitted to drop down onto the aforesaid ledge. Thus, the played records, instead of accumulating on the turntable, accumulate on the storage platform, so that the load on the motor is constant and record slippage is avoided.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, as well as additional objects and advantages thereof, will best be understood from the following description of one embodiment thereof, when read in connection with the accompanying drawing in which

Figure 1 is a plan view of a turntable constructed according to my present invention,

Figure 2 is a sectional view thereof taken on the line II—II of Fig. 1,

Figure 3 is an enlarged, detailed, side elevation showing the mechanism for normally keeping the pivotally connected parts of the turntable in closed, or record supporting, position and also showing the mechanism for swinging the turntable parts apart to open position for permitting the played record to drop therethrough, and

Figure 4 is an enlarged, detailed, sectional view taken on the line IV—IV of Fig. 1.

Referring more particularly to the drawing, wherein similar reference characters designate corresponding parts throughout, there is shown, in Fig. 2, a motor board 1 provided with an upwardly directed, cylindrical flange 3 around which is fitted a cylindrical member 5, the member 5 being rotatably mounted on a plurality of anti-friction bearings 7. A motor 9 drives the hollow cylindrical member 5 through a pulley 11 and a belt 13.

Pivotally connected to each other by means of a pin or the like 15 which is received in the member 5, as clearly shown in Fig. 4, are a pair of semi-circular members 17 which, together with the cylindrical member 5, constitute my improved turntable. The members 17 are spaced apart at

their ends 19, but are constantly urged toward each other, or into adjacent or substantially contiguous relation, by means of a coil spring 21, a pair of stop pins 23 in the cylindrical member 5 serving, in cooperation with a pair of slots 25 in the members 17, to limit the extent to which the members 17 may approach each other or be separated from each other. Each of the semi-circular members 17 is provided with an inwardly extending ledge or flange 27 of substantially semi-circular form, the ledges 27 tapering off at their ends 27a for a purpose presently to be set forth. The members 17 are also provided with substantially semi-circular, upwardly extending flanges or ridges 29, which serve to center the records on the turntable in a manner also to be presently set forth.

The member 5 is provided with an inwardly extending portion 5a which, like the flange 3, has an internal diameter appreciably greater than the diameter of a record R which is to be played. The inner diameter of the flange or ridge 29 is similarly appreciably greater than the diameter of the record R. However, when the semi-circular members are in axial alignment with the cylindrical member 5, or in the position shown in Figs. 1 and 2, to which they are constrained by the spring 21, the internal diameter of the substantially circular record support formed by the ledges 27 is substantially smaller than the diameter of the record R. It will therefore be apparent that a record dropped onto the turntable 5—17 in a manner, for example, disclosed in the above noted Woodward patent, will be supported on the ledges 17 and centered on the turntable by the ridge 29. Preferably, the ledges 27 may be surfaced with felt, rubber, or the like, in well known manner, to prevent slipping of the record on the turntable.

As will be clear from the foregoing description, the record R is supported only in a region adjacent its periphery by the ledges 27 and it is centered on the turntable solely by the upstanding annular member or ridge 29 which coacts with the periphery of the record. Pivotaly mounted on the member 5 between the adjacent ends 19 of the semi-circular members 17 is a cam member 31 which is provided with an extension or handle 33 projecting beyond the peripheries of the semi-circular members 17 and the member 5. Under the action of the spring 21, the cam member 31 is moved to the position shown in Fig. 1. When, however, the cam member is moved to a position where its extension 33 projects radially outwardly from the cylindrical member 5, the semi-circular members 17 are separated, or swung apart on their pivot 15. This enables the ledges 27 to clear the record supported thereby, thus leaving that record free to drop through the members 5 and 3 and onto a record receiving storage platform 35 which is supported by brackets 37 underneath the motor board 1. Inasmuch as the members 17 move only slightly at their pivoted ends, it is necessary to taper off the ends 27a of the ledges 27 so that they will clear the record supported thereby.

In order to actuate the cam member 31, a substantially L-shaped actuating member 39 is movably mounted for movement from the solid line position shown in Fig. 1 to the dotted line position shown in the same figure, and vice versa. The member 39 may be actuated in any suitable way from the mechanism which effects the automatic cycle of operations. When the member 39

is in the solid line position, the extension 33 of the cam member 31 clears the member 39. When, however, at the appropriate point in the cycle, the member 39 is advanced to its dotted line position, the heel 39a thereof is engaged by the extension 33, thereby causing the latter to swing around to a position substantially radially of the turntable, and in consequence effecting separation of the semi-circular members 17. In order to afford the played record sufficient opportunity to drop down onto the record receiving platform 35, the actuating member 39 is provided with the leg 39b, so that the extension 33 will be held in radially aligned position with respect to the turntable over an appreciable angle of movement thereof.

From the foregoing description, it will be apparent that I have provided a novel turntable construction which may be advantageously employed in an automatic phonograph of the type previously set forth and as a result of which the records will not pile up on the turntable, and, therefore, the load on the motor will remain constant. For the same reason, there will be no occasion for slippage of the records relative to the turntable, and therefore no variations in pitch of the reproduced sound will result.

Although I have shown and described but one embodiment of my invention, I am fully aware that many modifications thereof, as well as many changes in the particular modification described above, are possible. I therefore desire my invention shall not be limited except insofar as is made necessary by the prior art and by the spirit of the appended claims.

I claim as my invention:

1. In combination, a phonograph turntable for supporting a record during playing comprising a plurality of substantially contiguous parts pivotally connected to each other and relatively movable to and from contiguous relation, said parts including record supporting members spaced apart less than the diameter of a record when said parts are in contiguous relation whereby they are adapted to support a record and being spaced apart more than the diameter of a record when said parts are in separated relation whereby they are then adapted to release a record, means constantly urging said parts into record supporting relation, means adapted to move said parts from record supporting to record releasing relation, and means supporting said turntable for rotation in its own plane.

2. In combination, a phonograph turntable for supporting a record during playing comprising a plurality of substantially contiguous parts pivotally connected to each other and relatively movable to and from contiguous relation, said parts including record supporting members spaced apart less than the diameter of a record when said parts are in contiguous relation whereby they are adapted to support a record and being spaced apart more than the diameter of a record when said parts are in separated relation whereby they are then adapted to release a record, means constantly urging said parts into record supporting relation, means adapted to move said parts from record supporting to record releasing relation, means for limiting the relative movement of said parts, and means supporting said turntable for rotation in its own plane.

3. In combination, a phonograph turntable for supporting a record during playing comprising a pair of cooperating semi-circular parts pivotally

connected to each other at adjacent ends and separable at their diametrically opposite ends whereby said parts are relatively movable to and from substantially contiguous, annular relation, said parts including record supporting members spaced apart less than the diameter of a record when said parts are in contiguous relation whereby they are adapted to support a record and being spaced apart more than the diameter of a record when said parts are in separated relation whereby they are then adapted to release a record, means constantly urging said parts into record supporting relation, means adapted to move said parts from record supporting to record releasing relation, means for limiting the relative movement of said parts, and means supporting said turntable for rotation in its own plane.

4. In combination, a phonograph turntable for supporting a record during playing comprising a plurality of substantially contiguous parts pivotally connected to each other and relatively movable to and from contiguous relation, said parts including record supporting members spaced apart less than the diameter of a record when said parts are in contiguous relation whereby they are adapted to support a record and being spaced apart more than the diameter of a record when said parts are in separated relation whereby they are then adapted to release a record, means constantly urging said parts into record supporting relation, means on said parts adapted to coact with the periphery of a record to center the record on the turntable, means adapted to move said parts from record supporting to record releasing relation, and means supporting said turntable for rotation in its own plane.

5. In combination, a phonograph turntable adapted to support a record during playing and comprising a pair of substantially semi-circular members pivoted to each other and movable from closed to open position and vice versa, said members constituting an annular member having an inner diameter, when in closed position, which is smaller than that of the record to be supported thereon, and means supporting said member for rotation in its own plane.

6. In combination, a phonograph turntable adapted to support a record during playing and comprising a pair of substantially semi-circular members pivoted to each other and movable from closed to open position and vice versa, said members constituting an annular member having an inner diameter, when in closed position, which is smaller than that of the record to be supported thereon, means on said members adapted to cooperate with the periphery of said record to center the record on the turntable, and means supporting said member for rotation in its own plane.

7. A phonograph turntable adapted to support a record during playing and comprising a pair of substantially semi-circular members pivoted to each other and movable from closed to open position and vice versa, said members constituting an annular member having an inner diameter, when in closed position, which is smaller than that of the record to be supported thereon, and an upstanding substantially semi-circular flange on each of said members, said flanges cooperating to provide an annular flange, when said members are in closed position, having a diameter substantially equal to that of said record whereby said annular flange is adapted to

cooperate with the periphery of said record to center the record on the turntable.

8. A phonograph turntable adapted to support a record during playing and comprising a hollow cylindrical member having an internal diameter appreciably greater than the diameter of the record to be played, a pair of substantially semi-circular, relatively movable members connected to each other on one end of said cylindrical member, means constraining said semi-circular members to a position wherein said semi-circular members and said cylindrical members are in axial alignment, an inwardly extending ledge on each of said semi-circular members, said ledges normally combining to form a substantially circular support having a smaller diameter than the diameter of the record to be played whereby said record may be supported thereon during playing, and means for moving said semi-circular members relative to each other a distance sufficient to enable said ledges to clear said record whereby said record is left free to drop through said cylindrical member.

9. The invention set forth in claim 8 characterized by the addition of means on said cylindrical member for limiting the movement of said semi-circular members relative to each other.

10. In a phonograph, the combination of a turntable adapted to support a record during playing and comprising a hollow, cylindrical member having an internal diameter appreciably greater than the diameter of the record to be played, means rotatably supporting said member, means for rotating said member, a record receiving platform under said member, a pair of substantially semi-circular members carried on the upper end of said cylindrical member and pivotally connected to each other, spring means normally holding said semi-circular members in adjacent relation wherein said semi-circular members and said cylindrical member are in axial alignment, an inwardly extending ledge on each of said semi-circular members said ledges combining to form a substantially circular record support when said semi-circular members are in said adjacent relation, said support having a smaller diameter than said record whereby said record may be supported thereon, cam means cooperatively associated with said semi-circular members and adapted to swing them apart against the action of said spring means a distance sufficient to enable said ledges to clear said record whereby said record is left free to drop through said cylindrical member and onto said platform, and means for actuating said cam means to swing said semi-circular members apart.

11. The invention set forth in claim 10 characterized in that said cam means is provided with an extension projecting beyond the outer periphery of said semi-circular members, and characterized further in that said means for actuating said cam means is constituted by a member movably mounted for movement into and out of the path of movement of said extension, said extension being adapted to engage said last named member when said member is in advanced position.

12. In combination, a phonograph turntable for supporting a record during playing comprising a plurality of substantially contiguous parts mounted for movement relative to each other to and from contiguous relation, said parts including record supporting members spaced

apart less than the diameter of a record when in contiguous relation whereby they are adapted to support a record and being spaced apart more than the diameter of a record when said parts are in separated relation whereby they are then adapted to release a record, means adapted to move said parts to and from contiguous relation, and means supporting said turntable for rotation in its own plane.

13. In a phonograph, the combination of a turntable comprising a hollow, substantially annular member open at both ends and having an inwardly projecting portion adapted to support a record adjacent its periphery, means rotatably supporting said turntable on one end thereof, and means for rotating said turntable on said last named means.

14. In a phonograph, the combination of a turntable comprising a hollow, substantially annular member open at both ends and having an inwardly projecting portion adapted to support a record adjacent its periphery, means rotatably supporting said turntable on one end thereof, and driving means engaging the periphery of said turntable for rotating said turntable on said last named means.

15. A phonograph turntable comprising a hollow member having an internal transverse dimension appreciably greater than the diameter of a record to be supported thereby, and a pair of relatively movable, substantially semi-circular members pivotally mounted on one end of said first named member and pivotally connected to each other for movement from and to a position

over said hollow member, said semi-circular members each including record supporting means and being so constructed and arranged that when said semi-circular members occupy a position over said hollow member, said means are spaced apart a distance less than the diameter of the record whereby said means are adapted to support the record, and when said semi-circular members occupy another position, said means are spaced apart a distance greater than the diameter of the record whereby the record is free to drop through said hollow member.

16. A phonograph turntable comprising a hollow cylindrical member having an internal diameter appreciably greater than the diameter of a record to be supported thereby, and a pair of relatively movable, substantially semi-circular members pivotally mounted on one end of said cylindrical member and pivotally connected to each other for movement from and to coaxial relation with said cylindrical member, said semi-circular members each including record supporting means and being so constructed and arranged that when said semi-circular members are coaxial with said cylindrical member, said means are spaced apart a distance less than the diameter of the record whereby said means are adapted to support the record, and when said semi-circular members occupy another position said means are spaced apart a distance greater than the diameter of the record whereby the record is free to drop through said hollow member.

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