D. M. MANSON.

PHONOGRAPH.

APPLICATION FILED JAN. 24, 1916.

1,206,013. Patented Nov. 28, 1916.

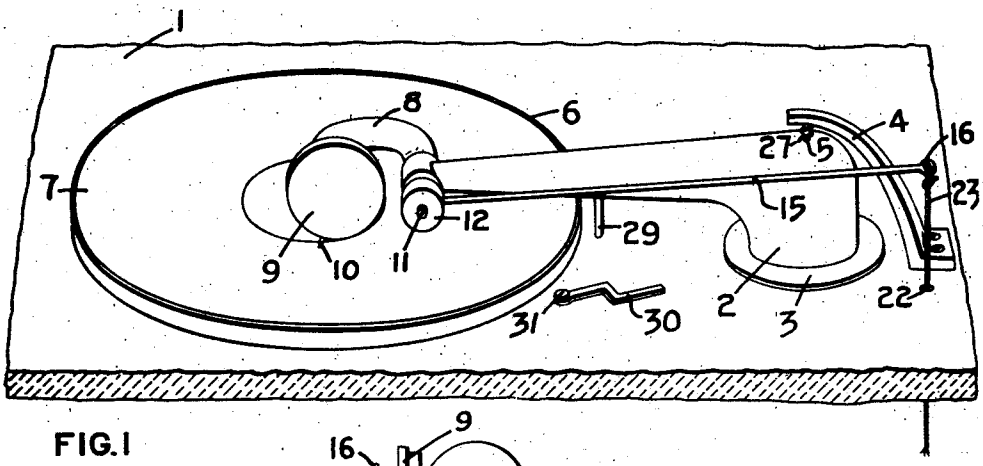


FIG. 1

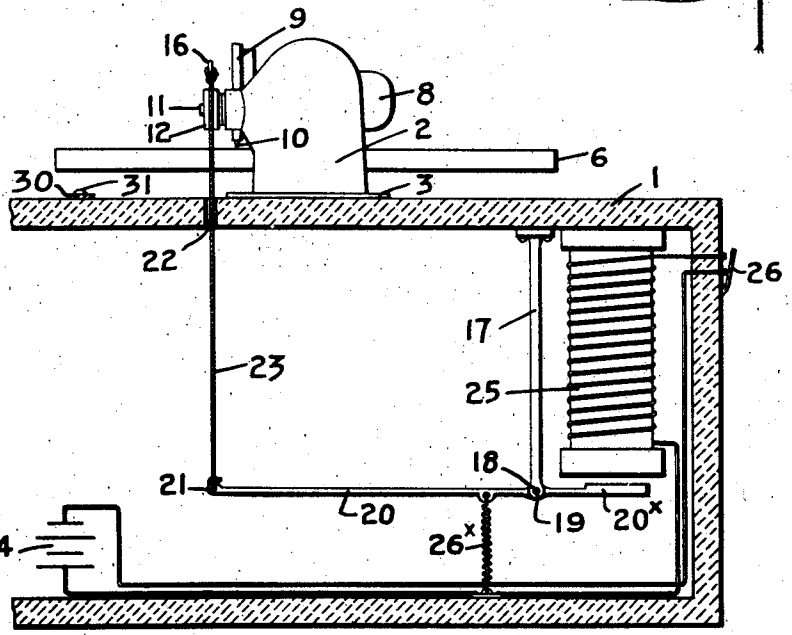


FIG. 2

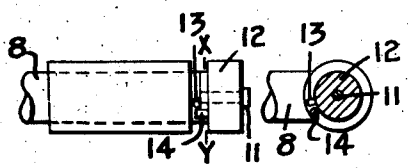


FIG. 3 FIG. 4

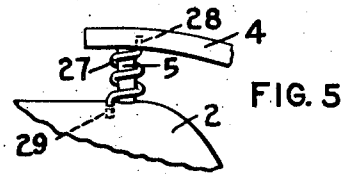


FIG. 5

WITNESSES

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PHONOGRAPH.

1,206,013. Specification of Letters Patent. Patented Nov. 28, 1916.

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To all whom it may concern:

Be it known that I, DONALD MILNE MANSON, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Phonographs, of which the following is the specification.

My invention relates to improvements in phonographs and the object of the invention is to devise electrical means whereby after a record has been played, the needle may be carried back to the beginning so that the playing of the record may be repeated, and it consists essentially of an arm secured at one end to the sound box crook, magnetic means for drawing down the opposite end of the arm thereby raising the sound box and needle from the record, a circuit for the magnet and a switch for making and breaking the circuit, a downwardly projecting portion carried by the taper tube, an adjustable stop designed to be turned in position to correspond with the starting point of the record, and a spring connected to the taper tube and to the bracket thereof and adapted to turn the taper tube from the center of the record when the needle is out of contact with the record to the starting position, whereby the taper tube is stopped from further turning by the projection thereof engaging with the adjustable stop, the parts being arranged as hereinafter more particularly explained in the following specification.

Figure 1 is a perspective view of a fragmental portion of the top of a phonograph showing a portion of my repeating means. Fig. 2 is a section through the rear portion of a phonograph box showing my repeating means. Fig. 3 is an enlarged detail of the junction of the sound box crook and the taper tube showing my attachment thereto. Fig. 4 is a section through Fig. 3 along the line *x—y*. Fig. 5 is an enlarged detail elevation of my spring attachment for turning the taper tube from the central portion of the record to the outer edge.

In the drawings like numerals of reference indicate corresponding parts in each figure.

1 indicates the usual casing of a phonograph.

2 indicates the taper tube or arm turnably mounted in the usual way in the collar 3.

4 indicates the usual bracket secured to the casing 1 and supporting the pivot 5 in the taper tube 2 in the usual way.

6 indicates the turntable of the phonograph carrying the record 7.

8 indicates the sound box crook turnably mounted in the ordinary fashion at the extending end of the taper tube 2.

9 indicates the sound box carried by the crook 8.

10 indicates the needle carried by the sound box 9.

11 indicates a pivot secured to the crook 8.

12 indicates a drum turnably mounted on the pivot 11.

13 indicates a projection carried by the crook 8.

14 indicates a projection carried by the drum 12 and adapted to engage with the projection 13.

15 indicates an arm secured at one end to the drum 12 and at its other end provided with an eye 16.

17 indicates a hanger secured to the frame 1 and having a bearing 18 at its lower extremity.

19 indicates a pivot carried in the bearing 18.

20 indicates an arm swingably carried on the pivot 19, and having an eye 21 at one end and an enlarged portion 20^{x} at the opposite end.

22 indicates a hole in the frame 1.

23 indicates a flexible cord secured at one end in the eye 16 of the arm 15, passing through the hole 22 and secured at its other end in the eye 21 of the arm 20.

24 indicates a battery.

25 indicates a magnet in proximity to the end 20^{x} of the arm 20.

26 indicates a switch for making or breaking a circuit from the battery 24 through the magnet 25.

26^{x} indicates a light spring secured to the arm 20 and to the frame 1.

27 indicates a coil spring under slight tension so as to have a tendency to unwind. One end of the spring 27 is secured in a hole 28 in the arm 4 and the other end is secured in a hole in the taper tube 2.

29 indicates a projection carried by the taper tube 2 slightly out of contact with the frame 1.

30 indicates a stop turnably secured by the pin 31.

Having described the principal parts involved in my invention, I will briefly describe the operation of the same.

After the mechanism of the turntable revolving device has been set ready for use the turntable 6 is started in motion. The taper tube 2 is then turned until the needle 10 comes into contact with the extreme outer edge of the playing portion of the record 7 at the same time turning the stop 30 on its pivot 31 so that it, the stop, is in contact with the projection 29 when the needle 10 is in the starting position on the record. The stop may be turned on pivot 31 to suit any size of record. The record is allowed to revolve until the selection is finished and then if it is desired to repeat it, or if at any intermediate point it is desired to start over the switch 26 is closed, thus closing the circuit through the battery 24 and energizing the magnet 25. The end $20^{\times}$ of the arm 20 is thus drawn up to the magnet 25 while the opposite end is lowered, drawing down on the cord 23 and pulling down the extending end of the arm 15. The pulling down of the extending end of the arm 15 turns the drum 12 on the pivot 11 and the projection 14 on the drum engaging with the projection 13 on the crook 8 turns the crook so that the sound box 9 is raised and the needle 10 is raised from the record. The spring 27 is very light and its torque has no effect whatever while the needle 10 is on the record 7, but when the needle is raised from the record by the magnetic means above described the taper tube which is delicately mounted in the collar 3 turns readily due to the unwinding tendency of the spring 27 until stopped by the projection 29 on the taper tube coming in contact with the stop 30. As may readily be seen the needle is now in a position directly above the starting point of the record because the stop 30 and the projection 29 were set in engagement for that position and therefore by opening the switch 26 the circuit through the battery 24 is broken and the needle comes into position for repeating the playing of the record. The spring $26^{\times}$ serves to keep the projections 13 and 14 in engagement with each other and permits the usual undulating movement of the needle over the surface of the record. The spring $26^{\times}$ also serves to restrain sudden falling of the needle 10 to the record when the contact 26 is broken. The connection shown whereby the projections 13 and 14 engage permits the sound box 10 being turned over in a vertical direction so as to rest on the tube 2 without turning down the arm 15 below the surface of frame 1.

By attaching a cord to each of the contacts of the switch 26 a person may be permitted to withdraw to some distance from the phonograph to better enjoy the music, and at the completion of a selection if it is desired to have it repeated it is only necessary to complete the circuit, wait a second or two to give time enough for the needle to travel from the center of the record to the edge and break the circuit, and the selection may be repeated thus as often as desired.

What I claim as my invention is:

1. In a phonograph, the combination with the sound box, sound box crook and supporting arm, of a drum carried by the sound box crook, an arm extending from the drum, electromagnetic means for drawing the outer end of the arm downwardly, manual means for making and breaking the circuit of the electromagnetic means, and means for carrying the arm back to the initial position.

2. In a phonograph, the combination with the sound box, sound box crook and supporting arm, of a drum carried by the sound box crook, an arm extending from the drum, electro-magnetic resiliently yieldable means for drawing the outer end of the arm downward, manual means for making and breaking the circuit of the electromagnetic means, and means for carrying the arm back to the initial position.

3. In a phonograph, the combination with the sound box crook, of a drum turnably carried thereby, an operating arm rigidly secured to the drum, means for depressing the arm to turn the drum and raise the crook, and inter-engaging means between the drum and the sound box crook adapted to permit of manually turning over the sound box crook of the operating arm.

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Witnesses:
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