Sept. 19, 1939. H. BELAR 2,173,223

PHONOGRAPH

Filed July 30, 1936

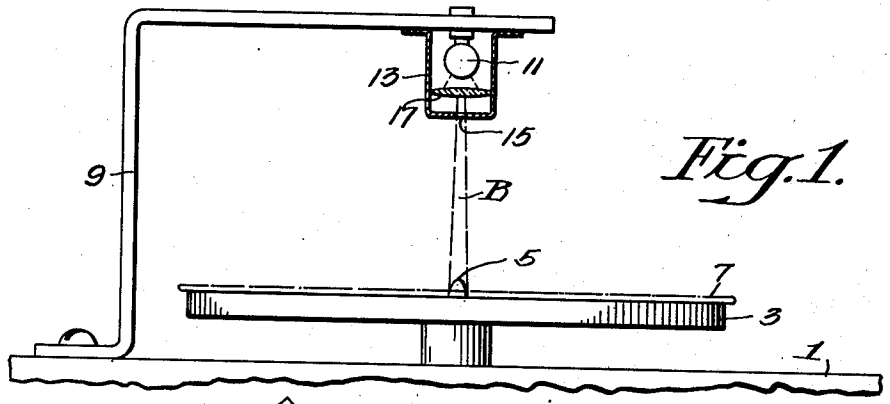


Fig. 1.

Fig. 2.

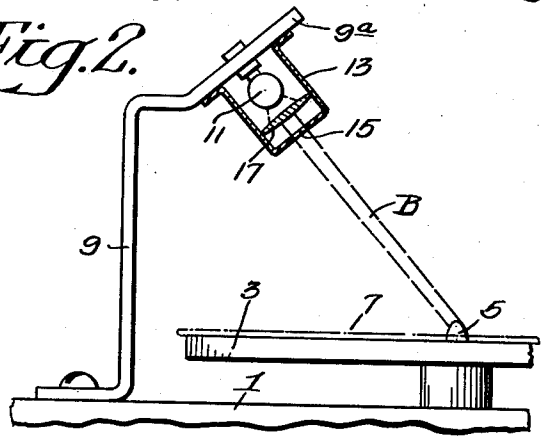


Fig. 3.

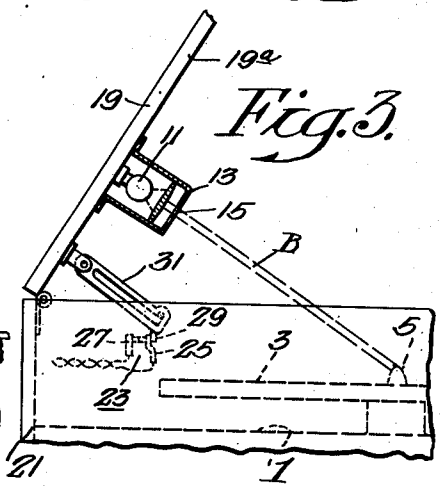
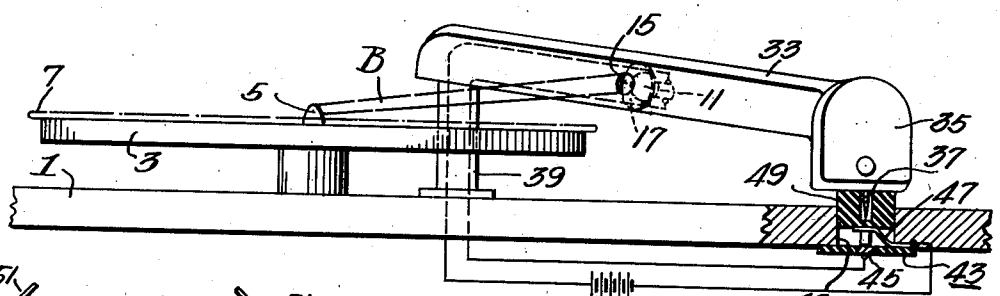


Fig. 4.



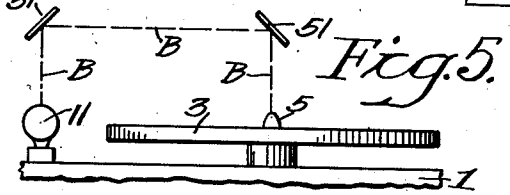


Fig. 5.

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UNITED STATES PATENT OFFICE

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PHONOGRAPH

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Application July 30, 1936, Serial No. 93,382

6 Claims. (Cl. 240—2.12)

This invention relates to phonographs, and more particularly to means therein for accurately locating the records on the turntable spindle with great facility.

It is well known that difficulty is often experienced in threading a record upon the centering spindle of the turntable of a phonograph, particularly when it is attempted to deposit a record on the turntable in the dark. Various proposals have been made heretofore to overcome this difficulty, such as making the central portion of the record of transparent material, or providing one or more grooves in the bottoms of the records which extend radially away from the centering hole and by means of which the records may be guided to the desired position after engaging one of these grooves with the spindle tip. These and other similar proposals necessitate the formation of special records, thereby increasing their cost.

The primary object of my invention is to provide improved means for locating records accurately on the turntable which is not subject to the foregoing disadvantages.

More specifically, it is an object of my invention to provide improved means whereby records may be quickly and accurately located with respect to the turntable spindle even in the dark.

Another object of my invention is to provide improved means as aforesaid which can be readily applied to existing phonographs without in any way changing or affecting the records themselves.

It is also an object of my invention to provide improved means of the character set forth which will be inexpensive, and which is highly efficient in use.

In accordance with my invention, I provide the phonograph with light source so located with respect to the turntable spindle that a beam therefrom is projected onto the spindle either in axial alignment therewith, or at an angle thereto, as may be deemed best. The device may be arranged to be normally inoperative to project the beam of light onto the spindle and become operative only when a record is to be placed upon the turntable.

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, together with additional objects and advantages thereof, will best be understood from the following description of several embodiments thereof when read in connection with the accompanying drawing in which

Figure 1 is a view partly in elevation and partly in section of one form of my invention,

Figure 2 is a similar view of a slight modification of this form of my invention,

Figure 3 is a similar view of a second form of my invention,

Figure 4 is a similar view of still another form of my invention, and

Figure 5 is a partly elevational and partly diagrammatic view of still another form of my invention.

Referring more specifically to the drawing, wherein similar reference characters designate corresponding parts throughout, there is shown, in Fig. 1, a motor board 1 above which is rotatably mounted a turntable 3 adapted to be driven by a suitable motor (not shown) and provided with a record centering spindle 5 on which a record 7 is threaded when placed upon the turntable. Fixed to the motor board 1, to one side of the turntable 3, is a bracket 9 on which is mounted a light source 11 within a suitable casing 13 provided with a small opening 15. Also mounted within the casing 13 is a lens 17 which is adapted to project a beam of light from the source 11 onto the turntable spindle 5. As shown in Fig. 1, the bracket 9 and the casing 13 with its enclosed lamp 11 and lens 17 are so located that the light beam B is directed to the spindle 5 along a path in axial alignment with the spindle. When it is desired to place the record 7 on the turntable 3, it is merely necessary to bring the center hole of the record into alignment with the light beam B and lower the record onto the turntable.

The modification of my invention shown in Fig. 2 is similar in many respect to that shown in Fig. 1. However, in this modification, the upper end 9a of the bracket 9 is bent upwardly to assume a position inclined with respect to the motor board 1, and the casing 13 is mounted on the portion 9a. With this arrangement, the light beam B is directed onto the spindle 5 at an angle thereto, instead of in axial alignment therewith, as in Fig. 1, and the record, after first aligning its center hole with the beam B, is moved angularly down to the turntable along the beam B.

In the form of my invention shown in Fig. 3, the casing 13 is mounted on the inner surface 19a of a cover 19 for a cabinet 21 which houses the motor board 1 and the turntable 3. Energy may be supplied to the lamp 11 from a suitable source (not shown) through a circuit which includes a

switch 23. The switch 23 may be of the type which includes a spring blade 25 biased so that it is normally out of engagement with the other blade 27 of the switch and adapted to be brought into engagement with the switch element 27 to close the switch 23 by means of an extension 29 on a lid support 31 connecting the cover 19 with a side wall of the cabinet 21. When the cover is in lowered, or closed, position, the extension 29 is out of engagement with the spring blade 25, and the blade 25 therefore assumes a position out of contact with the switch element 27 whereby the source 11 is not energized. When, however, the cover 19 is raised to the position shown in Fig. 3, the extension 29 presses the spring blade 25 against the switch element 27 to complete the circuit through the light source 11. As in the modification of Fig. 2, this form of my invention is so arranged on the cover 19 that the light beam B will be directed onto the spindle 5 at an angle thereto.

In the form of my invention shown in Fig. 4, the casing for the light source 11 is constituted by the supporting arm 33 for a pick-up device 35 which carries a needle 37 adapted to track the sound groove in the record 7. The arm 33 is pivotally supported on a hollow post 39 mounted on the motor board 1, and the lamp 11 is energized from a suitable source 41 through a switch 43 corresponding to the switch 23 of Fig. 3. The switch 43 comprises a fixed contact member 45 and a spring blade 47 which is biased in an upward direction out of contact with the switch element 45. The spring blade 37 may be located within an opening 1a in the motor board 1 in which is slidably mounted a rubber or similar member 49 for supporting the pick-up device 35 in rest position. The spring blade 47 normally elevates the supporting member 49 when it is out of contact with the switch element 45. However, the weight of the pick-up arm 35 and its supporting arm 33 is sufficient to cause the spring blade 47 to be depressed into contact with the switch element 45 when the pick-up 35 is placed on the supporting member 49, at which time the circuit through the light source 11 is completed. Here, again, the light source 11, the lens 17 and the opening 15 are so located on the supporting arm 33 that, when the pick-up 35 is placed upon the supporting member 49, the light beam B will be directed onto the spindle 5. Since the pick-up arm 33 is located above the turntable and to one side thereof, it will be obvious that the light beam B will be directed onto the spindle 5 at an angle thereto similarly to the beams B of Figs. 2 and 3.

From the foregoing description it will be apparent that I have provided a novel arrangement whereby the turntable spindle may be very easily located, particularly in the dark, for threading of a record thereon. Although I have shown and described several modifications of my invention, I am fully aware that many changes therein and still many other forms thereof are possible. For example, the light source 11 may be placed in any convenient position, as on the motor board, and the light beam directed onto the spindle from above or from the side by a series of reflectors 51 suitably arranged, as shown diagrammatically in Fig. 5. I therefore desire that 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 a phonograph, the combination with a casing having a motor board and a hinged cover movable from closed position to an open position inclined with respect to said motor board, a turntable rotatably mounted in said cabinet between said motor board and said cover and including a record centering spindle, a light source carried by said cover, means including a normally open switch for energizing said light source, means controlled by said cover for closing said switch when said cover is raised to open position whereby to energize said light source, and means associated with said light source for projecting a light beam therefrom onto substantially only said spindle when said switch is closed.

2. In a phonograph, the combination of a turntable including a record centering spindle, a pick-up arm mounted for movement over said turntable, and means including a light source carried by said pick-up arm for projecting a beam of light onto substantially only said spindle when said arm is in a predetermined rest position.

3. In a phonograph, the combination of a turntable including a record centering spindle, a pick-up arm mounted for movement over said turntable, a pick-up device on said arm for cooperation with a record carried by said turntable during reproduction, a light source also carried by said arm, means including a normally open switch for energizing said light source, a member for supporting said pick-up device in rest position, said member being arranged to close said switch when said pick-up device is placed thereon whereby to energize said light source, and means associated with said light source for projecting a beam of light therefrom onto said spindle when said switch is closed.

4. In a phonograph, the combination of a turntable including a record centering spindle, a pick-up arm mounted for movement over said turntable, a light source carried by said arm, means for projecting a beam of light from said source onto substantially only said spindle when said arm is in a predetermined position, means including a normally open switch for energizing said light source, and means controlled by said arm when in said position for closing said switch whereby to energize said light source.

5. In a phonograph, the combination of a motor board, a turntable rotatably mounted above said motor board and including a record centering spindle, a casing, means supporting said casing at a point elevated with respect to said turntable and spindle, a source of illumination in said casing, and means for projecting a light beam from said source onto substantially only the tip of said spindle whereby to constitute a guide to facilitate placing of a record on said turntable.

6. The invention set forth in claim 5 characterized in that said casing is constituted by the supporting arm of a sound translating device adapted to cooperate with and scan a record carried by said turntable during reproduction.

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