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2,949,529

ILLUMINATING DEVICES FOR THE PHONOGRAPH

Filed May 20, 1957

Fig. 1

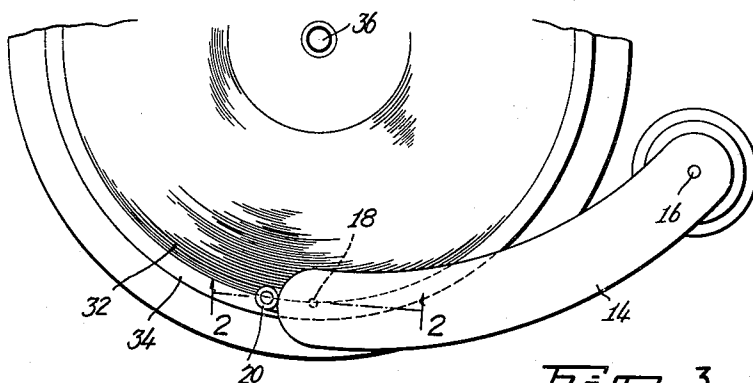


Fig. 2

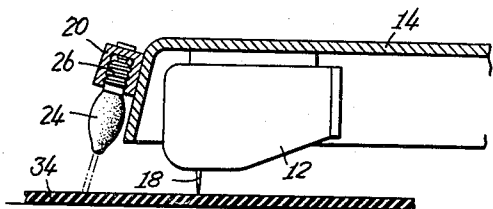


Fig. 3

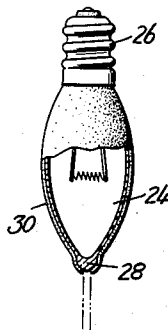


Fig. 5

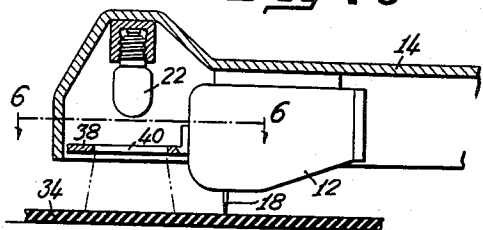


Fig. 4

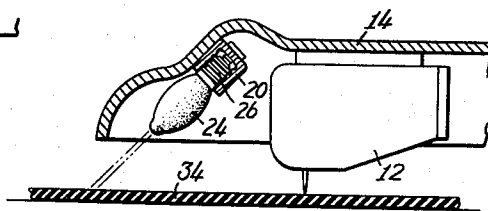
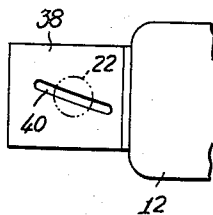


Fig. 6



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1 Claim. (Cl. 240—2.12)

This invention relates to improvements in phonographs or disk playing machines, particularly to illuminating means therefor.

It is well known that present day phonograph records of the disk type may have more than one song or music recorded thereon and such multiple recordings are separated by a space comprising minute annular grooves. As it is difficult to place the pick up needle carrying arm of the phonograph in position in the minute grooves separating the recordings, the present invention has for an object the use of artificial illumination to assist in the proper positioning of the needle arm.

Another object of this invention is to provide a phonograph provided with a means for preventing a disk and/or a needle from damages because of improper positioning of the needle.

Other objects and advantages of the present invention will appear from the following description and appended claim, when considered in connection with the accompanying drawing, in which:

Figure 1 is a plan view of a form of this invention;

Figure 2 is a sectional side view taken on the line 2—2 of Figure 1;

Figure 3 shows an electric lamp specifically constructed;

Figure 4 is a sectional side view of another form of this invention;

Figure 5 is a sectional side view of still another form of this invention;

Figure 6 is a plan view of a part of the form shown in Figure 5, taken on the line 6—6 of Figure 5.

Like numerals indicate like parts throughout the several views.

Referring now to Figures 1 and 2, a pickup head 12 is fixed on a pickup arm 14 which is pivoted at 16 on the casing of the phonograph. A needle 18 is carried by the pickup head 12 as usual. A socket 20 is fixed with its open end facing downwardly, on the free outside end wall of the pickup arm 14. A base 26 of a specified electric lamp 24 is in the socket 20. The lamp 24 comprises an envelope consisting of a tip portion 28 so shaped as to form a convex lens and the lamp is covered by an opaque film or a black coating 30 except for the tip portion 28, as shown in Figure 3. The lamp 24 is so arranged as to focus a beam of light on a space along a turn of the groove 32 and on an area of the disk 34 to be played when the needle 18 is put down in the turn of the groove of the disk 34. In order to indicate the location of the needle 18 indirectly by the illuminated spot wherever the pickup arm 14 swings, the lamp 24 is also so arranged that the lamp 24 and needle 18 are substantially at the same distances from the center 36 of the disk 34.

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The electric lamp may be arranged inside the pickup arm 14 as shown in Figures 4 and 5.

According to the form shown in Figure 4, the socket 20 is arranged as inclining downwards inside the top wall of the pickup arm 14 near the free end thereof. The specified lamp 24 whose structure is described hereinbefore is adapted to the socket 20 so as to focus the beam roughly roundly on a turn of the groove of the disk 34 and the proximity thereof, as shown in Figure 4. The turn is the one in which the needle is to be put.

Similarly, a usual electric lamp 22 may be used when an intercepting screen 38 is provided. The intercepting screen 38 is extended forwards from the pickup head 12, in which an arched perforation 40 is formed, the curvature thereof corresponding roughly to that of the turns of the groove 32 of the disk 34, as shown in Figure 6, so as to illuminate the disk along the required turns of the groove 32, as shown in Figure 5.

Throughout these embodiments, a usual electric lamp having an opaque cover may be used, the cover having an arched perforation at the tip portion, curvature of the arch corresponding to the curvature of the turns of the groove of the disk, in which the needle is to be put.

In order to meet variation in kinds of disks, the location, direction, and inclination of the lamps 22 and 24, the reflectors 42 and 48, and the intercepting screen 38 may, if desired be made adjustable.

While there is herein shown and described several forms of the present invention, I do not wish to be limited to the forms herein particularly shown and specifically described, but rather intend that the invention shall include all reasonable equivalents thereof which will occur to those skilled in the art from the present disclosure.

I claim:

In combination with a phonograph including a pick up arm having a pick up head carrying a needle to play a grooved disk, an illuminating device comprising a downwardly projecting electric lamp mounted adjacent the free end of said pick up arm and directed toward said disk at a point directly in front of said needle, said lamp having an opaque covering provided with an opening at the tip of the lamp, the tip of said lamp being shaped to form a convex magnifying lens at the tip thereof projecting through said opening, whereby a light beam of said lamp is focused on an area of said disk directly in front of said needle and on the groove of said disk in which said needle is to be positioned, said area and said needle being equidistant from the center of said disk.

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