

R. W. MORRISON,  
 PHONOGRAPH ATTACHMENT.  
 APPLICATION FILED APR. 8, 1919.

1,344,186.

Patented June 22, 1920.

FIG. 1.

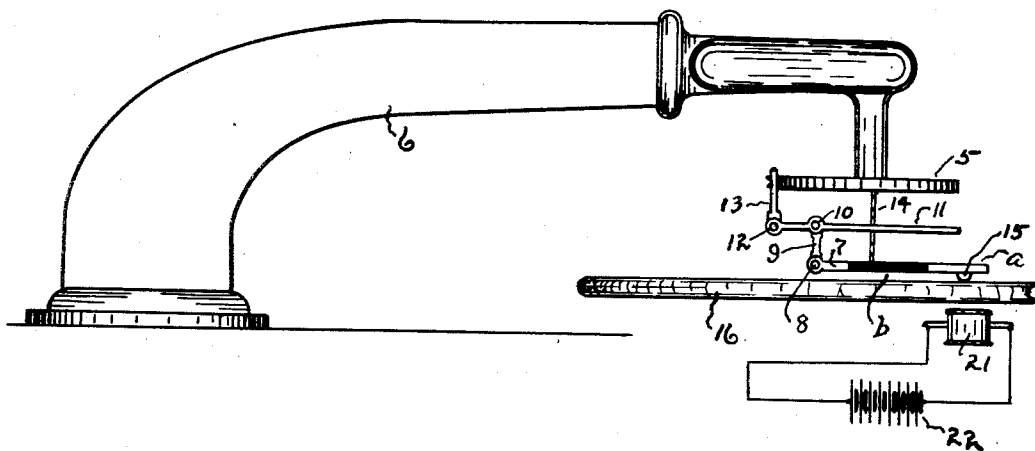


FIG. 2.

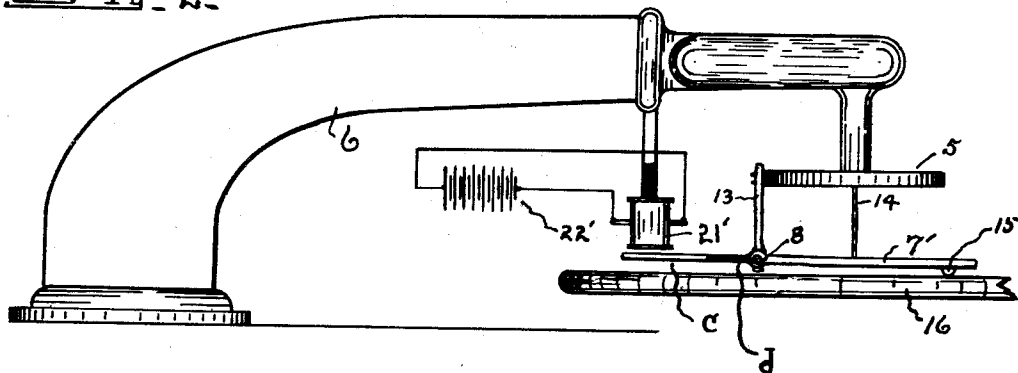


FIG. 3.

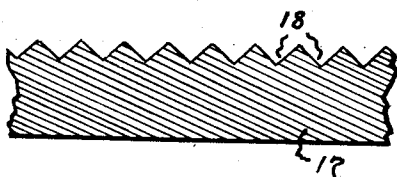
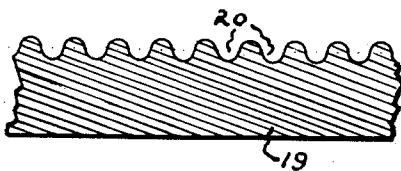


FIG. 4.



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## PHONOGRAPH ATTACHMENT.

1,344,186.

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Application filed April 8, 1919. Serial No. 288,559.

*To all whom it may concern:*

Be it known that I, RALPH W. MORRISON, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Phonograph Attachments, of which the following is a specification.

This invention relates to a phonograph attachment, and has for its object to provide means to normally maintain the stylus within the spiral groove of the disk during operation or rotation of the disk, this being of great utility in instances where the disk is disposed inclinedly.

The invention consists of the novel construction, combination and arrangement of parts as described herein and claimed, and as illustrated in the accompanying drawing, wherein,—

Figure 1 is a view in side elevation of certain operating parts of a phonograph with the attachment applied. Fig. 2 is a view similar to that shown in Fig. 1, being a modified form of the invention. Figs. 3 and 4 are broken away, sectional views on an enlarged scale illustrating forms in cross-section of spiral grooves of disks.

Referring now to the drawing for a more particular description, the invention is illustrated in connection with certain well known parts of a phonograph, as the sound box 5 mounted upon the support 6, the stylus-arm 7 having a pivotal connection 8 with the link 9 the latter being pivotally connected, as indicated at 10, between the ends of the horizontal bar 11, said bar being pivotally connected, as indicated at 12, at one of its ends, with the bracket-arm 13 of the sound box, the stylus-arm being supported intermediate its ends by means of a cord 14 which is connected with the diaphragm of the sound box, whereby the stylus-arm will be supported in approximately a horizontal position with its stylus 15 engaging in the groove of the disk 16.

It is well known that certain disk-records 17, as shown in Fig. 3 are employed which are provided with grooves 18 of inverted V-shape in cross-section; also that other disk-records as shown in Fig. 4 are employed, these being provided with grooves 20 which, in cross-section have a uniform curvature; also, for engaging in the grooves 20 a stylus

15 is used which has a curvature conforming to the shape, in cross-section, of said grooves 20, with the result in the use of the latter that the element 15, during operation, occasionally will not remain in the groove but will be shifted transversely to enter an adjacent groove, especially if the disk-record 16 is disposed inclinedly.

The object of the invention, therefore, is to provide means for causing a constant pressure of the stylus against the disk for maintaining it within the groove during the revoluble movement of the disk 16 regardless of the inclination of said disk, and for this purpose I employ an electromagnet 21 which, in Fig. 1, is disposed below the stylus and below the disk, said electromagnet being supported by any suitable means and to be electrically energized by any suitable means, an electric battery being shown for this purpose, the stylus-arm shown in said Fig. 1 having a terminal metallic part *a* and having an insulated part *b* intermediate its metallic part *a* and its pivotal mounting 8.

In Fig. 2 is shown a modified form of the invention, a stylus-arm 7' being employed having the form of a rock-lever, said arm having a terminal metallic part *c* at its end, opposite to the stylus 15, said metallic part being disposed below and adjacent to an electromagnet 21' energized by the electric battery 22' or other suitable electrical supply, and having an insulating part *d* between the metallic part *c* and the pivotal mounting 8.

In operation, the electromagnet will cause a pressure of the stylus 15 against the disk 16 and thereby will normally maintain the stylus within a groove 20. The use of the attachment will be appreciated since the disk 16 occasionally may be disposed inclinedly, thereby causing the stylus to be shifted transversely to an adjacent groove. The device is particularly of advantage in instances where the grooves are shallow and are of curved form in cross-section, the stylus having a convexed surface conforming to the curvature of the groove, since it is dependable for the purpose described regardless of the degree of inclination of the disk.

I claim:

1. In combination with a pivotally mounted stylus-arm and revoluble disk of a phonograph, an electromagnet disposed within

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operative proximity to the stylus-arm for normally causing a pressure of the stylus against said disk.

5 2. An attachment for phonographs, comprising, in combination with a revoluble, spirally grooved disk, a pivotally mounted stylus-arm having an insulating part and having a metallic part provided with a stylus, an electromagnet disposed within

operative proximity to the metallic part of 10 the stylus-arm for causing a pressure of the stylus within the groove of the disk.

In testimony whereof I have affixed my signature in presence of two witnesses.

RALPH W. MORRISON.

Witnesses:

HIRAM A. STURGES,  
ARTHUR H. STURGES.