

Jan. 12, 1926.

J. Q. SLYE

1,569,402

STYLUS SHARPENING DEVICE

Filed May 27, 1922

2 Sheets-Sheet 1

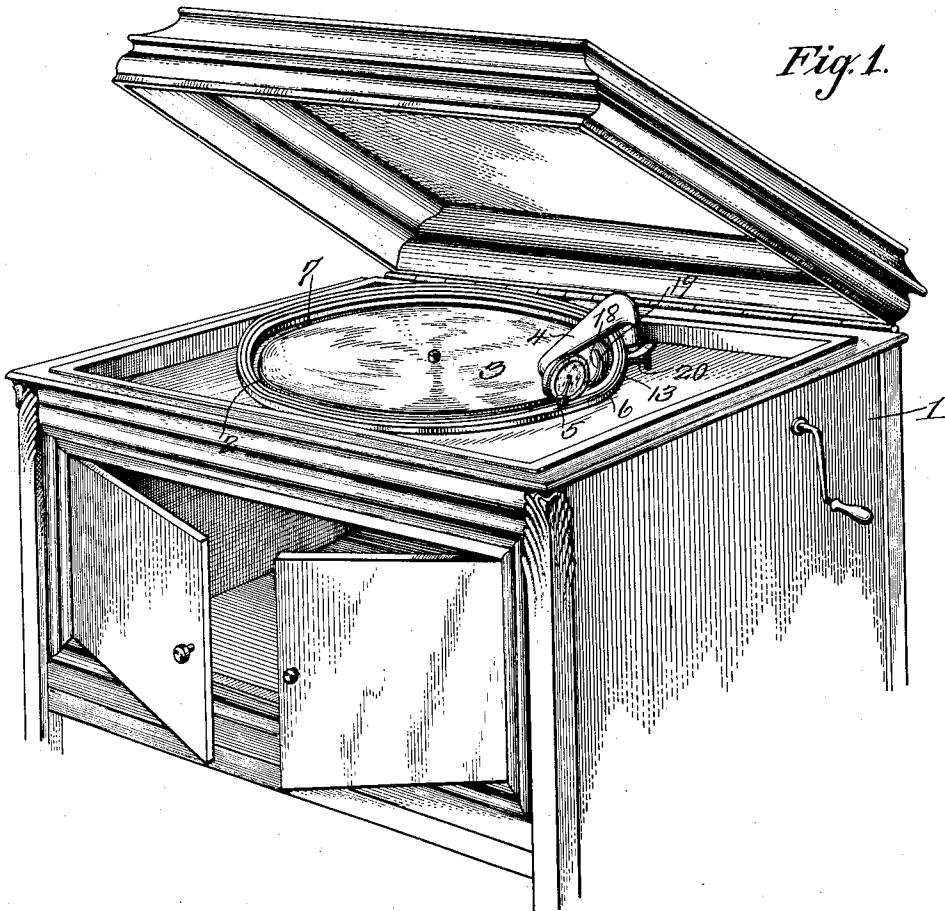


Fig. 1.

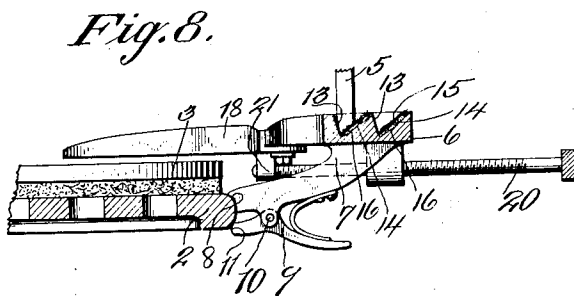


Fig. 8.

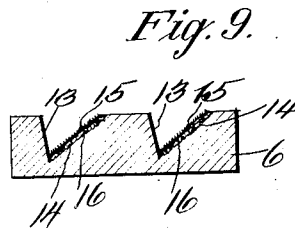


Fig. 9.

Inventor

John Queen Slys,

By

R. A. Powell  
Attorney

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Fig. 2.

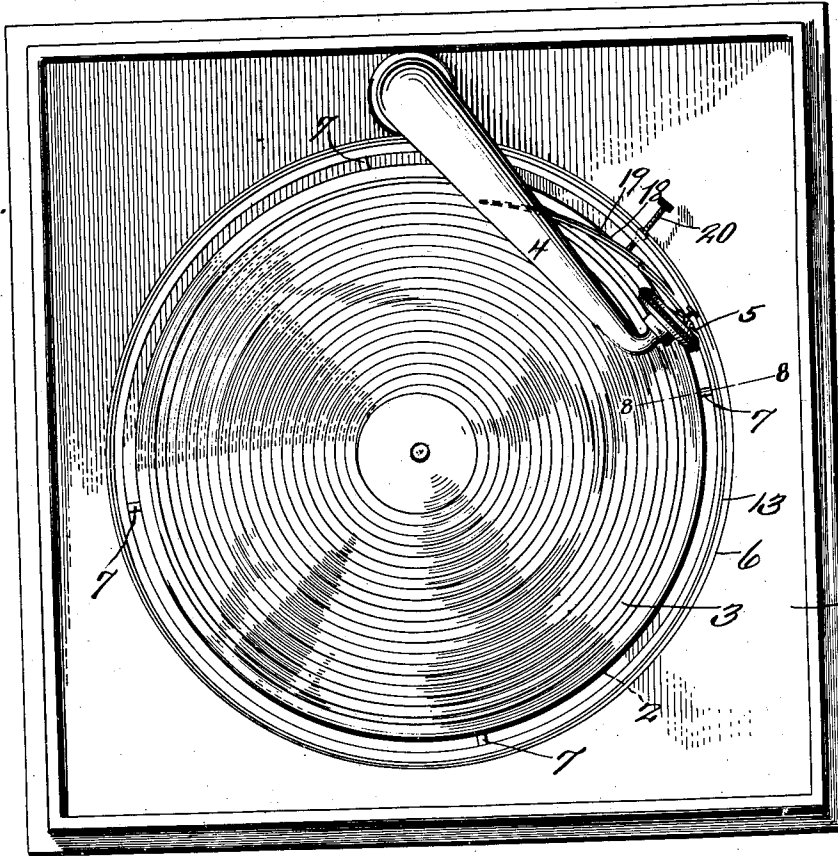


Fig. 6.

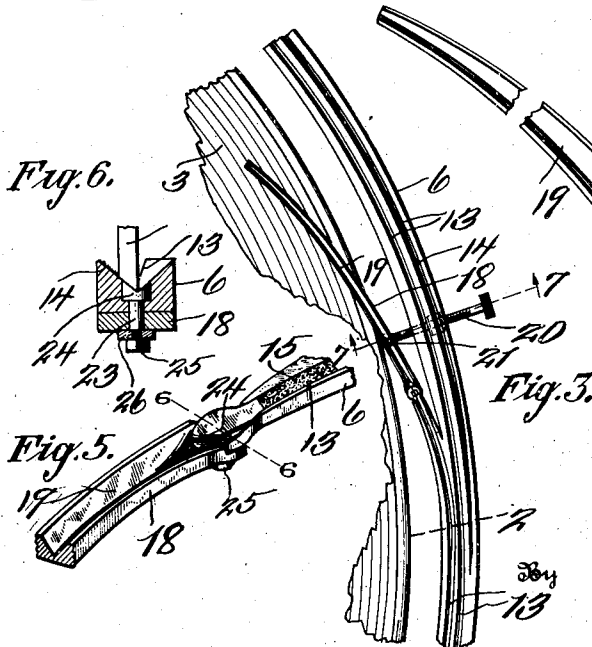


Fig. 7.

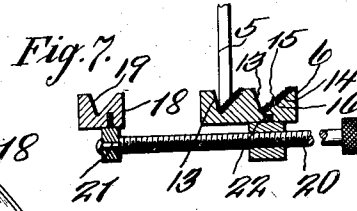
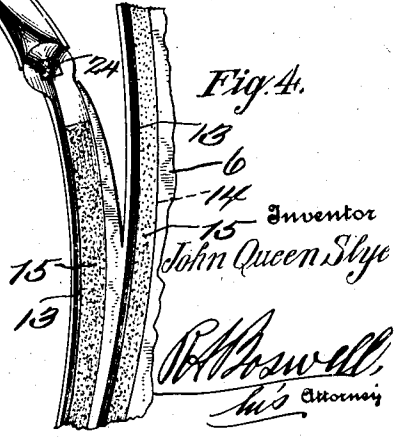


Fig. 4.



Inventor  
John Queen Slye  
R. A. Aswell,  
his Attorney

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# UNITED STATES PATENT OFFICE.

JOHN QUEEN SLYE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO STANDARD APPLIANCE AND SOUVENIR COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF THE DISTRICT OF COLUMBIA.

## STYLUS-SHARPENING DEVICE.

Application filed May 27, 1922. Serial No. 564,161.

*To all whom it may concern:*

Be it known that JOHN QUEEN SLYE, a citizen of the United States of America, residing at Washington, D. C., has invented a new and useful Stylus-Sharpener Device, of which the following is a specification.

The best talking machine records, namely those rendered by the best singers and players, for instance such as operatic music and the best songs in general, are reproduced with wooden needles.

It is well known that a great many needles of this kind are used, and it is also known that when a fibre needle has been used once, it is discarded. Possibly a needle may be used twice, and due to the fact that such needles are discarded after having been used once or twice, a great many needles are used.

It is, therefore, the purpose of the present invention to provide a talking machine needle sharpening device, for renewing the beveled end, just prior to it being engaged with the record, thereby making the needle as good as new, and avoiding the use of so many needles during a musical evening.

It is another purpose to provide a sharpening device of this character, to be detachably carried on the turntable of the talking machine, and provided with a spiral groove having a coat of emery, so that the needle may operate and be sharpened therein.

Still another purpose is the provision of a sharpening device, which not only renews the beveled end of the fibre needle, but also acts to feed the needle from the sharpening device toward and upon the record, in a position to feed around the sound groove of the record. In other words the needle is first sharpened and then automatically placed upon the record, thereby entailing no separate sharpening, by hand, or by an instrument after placed in the stylus holder and the machine started. Obviously from an inspection of the drawing, in connection with the following description, the needle automatically proceeds from the sharpening device toward and upon the record, thereby not only saving the number of needles used, but also expediting the sharpening of the needles.

A further purpose is the provision of a sharpening device including means by which it may accommodate itself to records of dif-

ferent diameters, and to perform the work of sharpening the needle with accuracy in each instance.

A still further purpose is the provision of means on the sharpening device, for holding the device on the turntable, so that it will move with the table, and yet be permitted to be removed, when it is so desired.

It is to be understood that the particulars herein given are in no way limitative and that while still keeping within the scope of the invention, any desired modifications of detail and desired proportions may be made in the apparatus according to circumstances.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a perspective view of a talking machine showing the improved stylus or needle sharpening device applied and constructed in accordance with the invention;

Figure 2 is a plan view of the upper part of a talking machine, showing the stylus sharpening device as applied to the table, and the tone arm in a position with the needle traveling in the emery groove of the sharpening device, whereby the needle may be fed toward and upon the record to be played;

Figure 3 is an enlarged detail plan view of a segment of the sharpening device or ring, showing the emery groove and the adjustable tongue;

Figure 4 is still another enlarged plan view of a segment of the sharpening device or ring, showing the mounting of the transfer tongue;

Figure 5 is a detail perspective view of the joint which connects the transfer tongue to the sharpening device;

Figure 6 is a cross sectional view on line 6—6 of Figure 5;

Figure 7 is a cross sectional view on line 7—7 of Figure 3;

Figure 8 is a sectional view on line 8—8 of Figure 2; and

Figure 9 is a detail cross sectional view of the ring or sharpening device, showing how the emery is applied to the inclined sharpening face of the sharpening device.

Referring to the drawings, 1 designates

the casing of a conventional form of talking machine, and 2 denotes the turntable, which supports a record 3.

The talking machine also includes a tone arm 4, which is mounted centrally to the rear of the cabinet in the present instance. A fibre needle, such as indicated at 5 is inserted in the stylus holder in a manner similar to the insertion of a steel needle, and is secured in such holder in a like manner.

The sharpening device is designed to be carried by the table 2, in order to move therewith. In fact the sharpening device comprises a ring 6, which is provided with a plurality of radial supporting legs 7, the inner ends of which are curved as shown at 8, for the purpose of engagement with the marginal edge, which is curved in cross section. Suitable holders or levers 9 are pivoted at 10 to the lower portions of the legs. These holders or dogs have their noses 11 engaging partly under the table, to prevent accidental upward movement of the ring. It is obvious that sufficient pull upwardly on the ring will cause the dogs to yield, and permit the removal of the ring.

The ring may be cast or otherwise constructed, and may be made of any suitable metal, either steel or aluminum, preferably the latter, in order to provide an attachment which is light, and therefore will not impede the movement of the table. The upper surface of the ring is provided with a spiral groove consisting of one or two convolutions. This groove 13 is V-shaped in cross section, as shown clearly in Figure 7, and the inclined face 14 of the groove is provided with a coating of emery or carborundum or similar material 15, for the purpose of sharpening the fibre needle. In fact the inclined face of the groove corresponds to the bevel of the needle, therefore when the tone arm is placed, so that the beveled end of the needle will contact with the inclined face of the groove, the fine light coating of emery or carborundum or other suitable material will act to grind the bevel of the fibre needle, and therefore sharpen the point of the needle, that is to say the point which engages the sound groove of the record.

This light layer of emery or carborundum or other suitable material may be applied to the inclined face of the groove, in any suitable manner. For instance the inclined face (which may be any suitable depth preferably of a greater depth than the depth of the bevel of a needle) of the groove may be roughened, as indicated at 16 in Figure 9, so as to receive a light coat of fish glue, shellac or any other suitable adhesive. This roughened surface is not to be too deep, but very light, in fact just enough to permit the adhesive to take hold, sufficient to retain the particles of emery or carborundum on the surface. After applying the coat of adhesive

to the inclined face, a requisite amount of emery or carborundum in a powdered form is distributed uniformly over the surface, and the surface then allowed to dry, in order to provide a grinding surface for the beveled end of a fibre talking machine stylus or needle. Any other suitable manner of applying the emery or carborundum to the surface of the groove may be employed, provided the desired result may be attained.

As previously stated the sharpening groove of the ring is in a spiral form, consisting of one or two convolutions, therefore when the needle is placed in engagement with the sharpening groove, it may feed toward the table, as the table rotates. The one or two revolutions of the table will be sufficient to permit the beveled end of the needle to be ground, so as to permit the point of the needle to become sharpened, equally as good as a new needle.

It has been found that when the needle reaches the terminal of the sharpening groove, the beveled end of the needle will have been ground just sufficient, to renew the point of the needle. In fact it has been found that the amount of surface removed from the bevel will not shorten the needle to an extent as would render the shortness perceptible, when compared with new needles. It is true, however, that if a needle is sharpened consecutively for a great number of times, the shortness of the needle may be readily observed, as compared with new needles.

In order to permit the stylus to feed from the sharpening groove of the grinding device automatically to a position on the record (which is supported by the revoluble table) the inner margin of the ring 6, which carries the sharpening groove, has its under portion cut away or undercut, and pivotally connected to the surface of this undercut or cut away portion is a needle transfer tongue 18. This transfer tongue carries a groove, corresponding to the sharpening groove of the ring. However, the groove 19 of the transfer tongue is plain, in fact not provided with a sharpening surface. The transfer tongue is sufficiently curved, and long enough, in order to permit the stylus of a needle to be transferred automatically from the sharpening groove of the ring 6 to the sound groove of the record, without in any way entailing any unnecessary work on the part of the operator, when operating the talking machine.

In order to adjust the transfer tongue, so that it may accommodate itself to records of different diameters, a suitable thumb screw or the like 20 is carried radially by the under portion of the ring, and swivelled at 21 to the extension tongue, whereby upon rotating the thumb screw in the desired direction, the transfer tongue may be adjusted rela-

tively to the groove of the record. The transfer tongue may be constructed and arranged, so as to accommodate records of different diameters, from the maximum to the minimum diameter.

In the operation, the ring 6 is placed in a position over the table, substantially concentrically therewith, and is then lowered, until the curved edges of the legs may contact with the perimeter of the table, then the holding members may be positioned to retain the ring in position, on the table in such wise as to prevent movement of the ring, when in the act of grinding the beveled end. The stylus is placed in engagement with the groove after the table has been started, though it is possible to place it in engagement before the table is started. However it is preferable to place the stylus in engagement with the grinding groove after starting the table, due to the fact that the act of grinding the bevel of the stylus, will tend to retard the table, until the end of the stylus reaches the plain groove of the transfer tongue, and until after the terminal of the tongue reaches the sound groove of the record. After so arranging the ring, the thumb screw is then properly adjusted, in order to arrange the transfer tongue in position, sufficient to transfer the stylus from the sharpening groove to the sound groove of the record, possibly in a short while. As soon as the stylus leaves the transfer tongue, it will engage the sound groove, and will subsequently feed from the outer margin of the record to the center, where the music or record terminates.

The sharpening device or ring which is provided with the emery groove may be constructed of any suitable metal, preferably aluminum. The spiral groove formed in the upper face of the ring has one face thereof supplied with a coating or layer of emery or carborundum, which is applied, by first supplying the face with a coating of some suitable adhesive, subsequently to which a very fine dust of emery or carborundum is applied upon the adhesive. In this way an emery sharpening face is provided for grinding the beveled end of a fibre needle, so as to sharpen the point thereof. If desired, the ring or sharpening device may be stamped and shaped from any suitable sheet metal.

The pivot which connects the extension tongue 18 to the ring 6 comprises a bolt 23 which has a rectangular head 24, which holds the bolt fast and against turning in the ring 6. This bolt 23 passes through the extension tongue 18 and has a nut 25 including a washer 27 on a reduced shank 26, to hold the extension tongue on the bolt. It will be noted that the groove 13 of the ring is formed through the upper surface of the rectangular head of the bolt, so as not to retard the needle as it travels from the ring

to and through the tongue. Where the grooves of the ring and the tongue adjoin, they are flared or curved outwardly on opposite sides, so as to permit the needle to easily pass from one to the other.

The adjusting thumb screw 20 is threaded through a bearing 28, which is swivelled at 22 in the ring 6, so that the screw may accommodate itself to the ring and the tongue, when the screw is adjusted, and the tongue moved inwardly over the record.

The invention having been set forth, what is claimed is:—

1. The combination with a revoluble talking machine turntable for carrying a record, of means provided with needle sharpening surface and positioned in concentric relation to the turntable, and means operatively engaging with the turntable and supporting said first means in its concentric relation, whereby said first means is capable of being lifted from the turntable without first removing the latter or the record to be supported thereby.

2. The combination with a revoluble talking machine turntable for carrying a record, of means carried by the table independently of the record for sharpening a needle and provided with needle starting and ending terminals, and means operatively connected to the ending terminal for transferring the needle from the sharpening means to the sound groove of the record automatically.

3. The combination with a revoluble talking machine turntable for carrying a record, of a sharpening device supported on the turntable and provided with a spiral grinding groove for grinding the beveled end of a stylus or needle, and movable means at the terminal of said spiral groove for transferring the needle from engagement with the grinding groove to an engagement with the sound groove of the record.

4. The combination with a revoluble talking machine turntable for carrying a record, of a sharpening device supported on the turntable and provided with a spiral grinding groove for grinding the beveled end of a stylus or needle, and means at the terminal of said spiral groove and movable to different positions over the record for transferring the needle from engagement with the grinding groove to and in engagement with the sound groove of the record, and means for holding said transfer means in such different positions, whereby the needle may transfer to records of different diameters.

5. The combination with a revoluble talking machine turntable for carrying a record, of a member provided with a needle sharpening groove and positioned in concentric relation to the turntable, and a plurality of supports carried by said member and operating in engagement with the turntable

and supporting said member in its concentric relation, whereby said member is capable of being lifted from the turntable without first removing the table or the record to be supported thereby.

6. A stylus sharpening device consisting of a member for operative mounting on a record supporting turntable, said member having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, and means at the terminal of the grinding groove and movable to different positions over the record for making the transfer of the needle from the grinding groove to the record groove.

7. A stylus sharpening device consisting of a member for operative mounting on a record supporting turntable, said member having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, and means at the terminal of the grinding groove and movable to different positions over the record for making the transfer of the needle from the grinding groove to the record groove, and means for holding the transfer means in such different positions, whereby the stylus may accommodate itself to records of different diameters.

8. A stylus sharpening device consisting of a member for operative mounting on a record supporting turntable, said member having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, said grinding groove having an inclined grinding surface and provided with an opposite plain surface extending substantially perpendicularly so as to enable centering the beveled end of the stylus to be ground.

9. A stylus sharpening device consisting of a member for operative mounting on a

record supporting turntable, said member having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, means at the ends of said grinding groove and movable over the record for guiding the needle to the record groove, said grinding groove of the member having an inclined grinding surface and provided with an opposite plain surface extending substantially perpendicularly so as to enable centering the beveled end of the stylus to be ground, the guiding means being a continuation of the grinding groove.

10. A stylus sharpening device consisting of a ring for operative mounting on a record supporting turntable, said ring having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, and a transfer device pivoted to the under portion of the ring for automatically transferring the stylus from the sharpening groove to the sound groove of the record.

11. A stylus sharpening device consisting of a ring for operative mounting on a record supporting turntable, said ring having a grinding groove with which the beveled end of a stylus may engage, whereby said beveled end may be sharpened, a transfer device pivoted to the under portion of the ring and movable to different positions over the record for automatically transferring the stylus from the sharpening groove to the sound groove of the record, and means comprising a thumb-screw carried by the ring and operatively connected to the transfer device for holding it, whereby the needle may transfer to records of different diameters.

In witness whereof, the inventor's signature is hereunto affixed.

JOHN QUEEN SLYE.