No. 727,613. PATENTED MAY 12, 1903.

E. D. GLEASON.

NEEDLE GRINDING MACHINE.

APPLICATION FILED AUG. 9, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

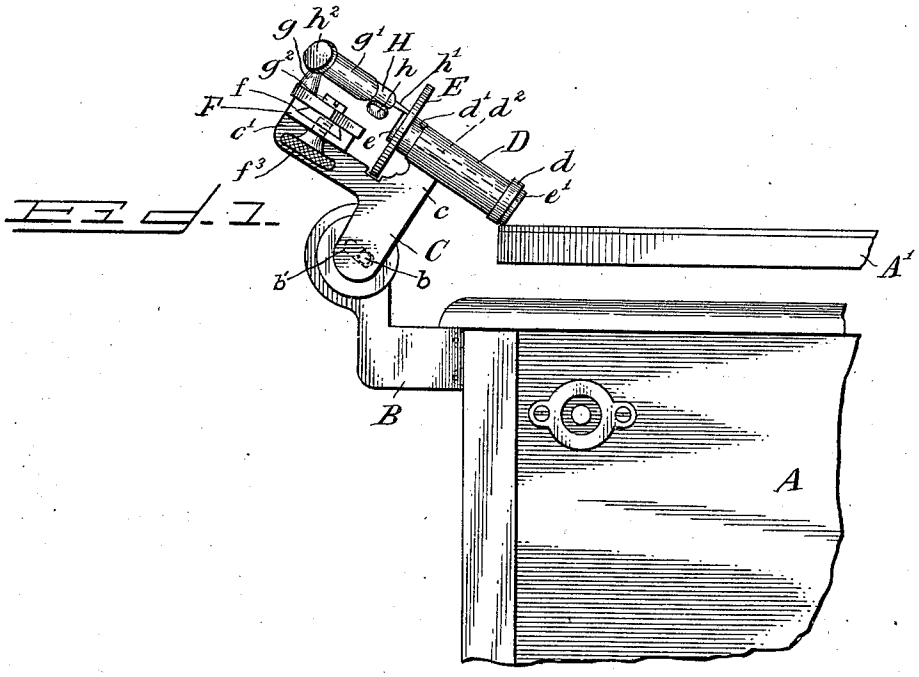
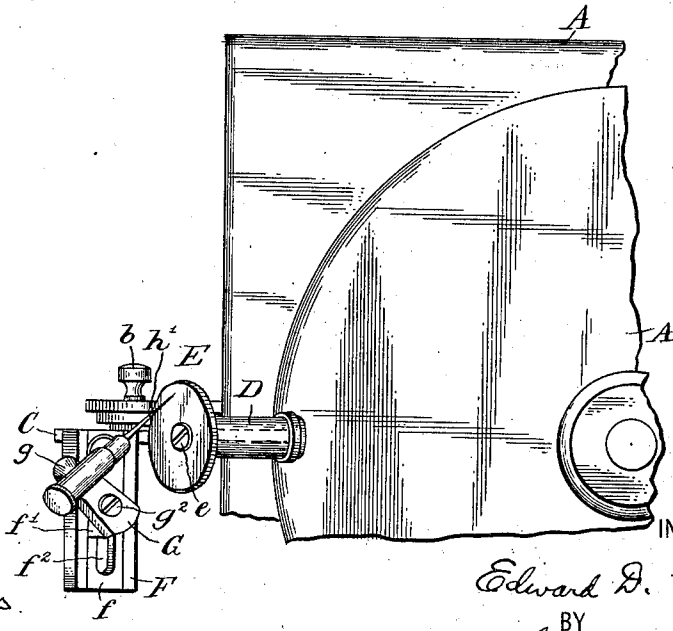


Fig. 2.



WITNESSES:

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

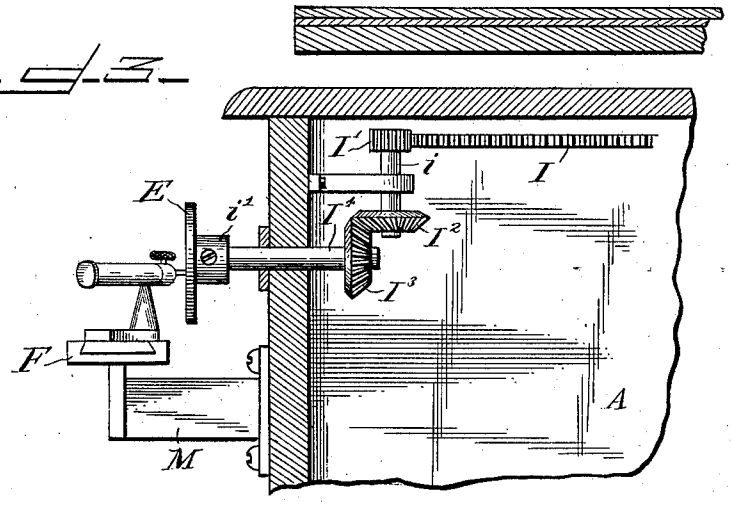
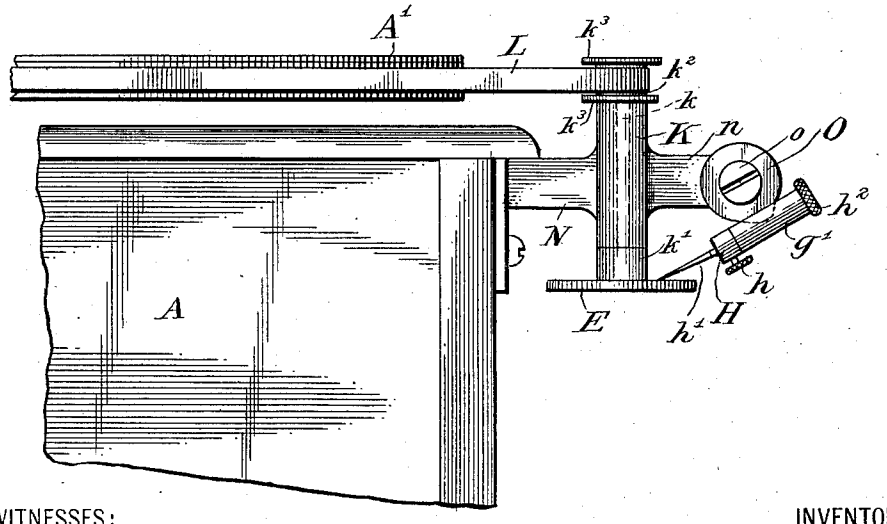


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD D. GLEASON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HAWTHORNE & SHEBLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

NEEDLE-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 727,613, dated May 12, 1903.

Application filed August 9, 1902. Serial No. 119,069. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. GLEASON, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Needle-Grinding Machines, of which the following is a specification.

My invention has reference to a needle grinding or sharpening device adapted more particularly for use in connection with that kind of sound recording and reproducing apparatus called the "gramophone."

As is well known, the gramophone employs flat or disk records and a reproducing-stylus in the form of a sharp-pointed steel needle. This stylus or needle becomes worn and its efficiency impaired even after a single reproduction, necessitating the employment of a new needle after each reproduction in order to obtain the best results.

The present invention provides a cheap and simple arrangement by which the point of the needle may be restored, thereby prolonging the life of the needle and permitting it to be used over and over again for thirty or even more reproductions.

I will describe several embodiments of my invention, and point out the novel features thereof in the claims.

In the accompanying drawings, Figure 1 is a side view of one form of my invention, the parts of the gramophone-case being broken away. Fig. 2 is a top view of Fig. 1, and Figs. 3 and 4 illustrate modifications.

Similar letters of reference in the several views indicate similar parts.

Referring to Figs. 1 and 2, A designates the box or case which incloses the operative parts of the gramophone, and A' the platform upon which the disk-record is supported. The said platform is rotated by any of the means employed in apparatus of this kind, and as such means are well known no description thereof is necessary.

My invention is applied to the gramophone as an attachment, which can be easily detached for shipment and readily applied when it is desirable or necessary to use it. When attached, it is of such construction that it may be swung out of place, so as to be rendered inoperative and out of the way when the gramophone is used for its ordinary purpose of reproducing.

In the above figures, B designates an arm projecting from the side of the case A and secured thereto by any suitable means. Said arm carries a stud-screw b, upon which is rotatably supported a bracket C, on the portion c of which is fixed a sleeve D. Through said sleeve passes a spindle d^2, (shown in dotted lines in Fig. 1,) having on its ends collars d d', which collars bear against the ends of the sleeve D to prevent longitudinal movement of the spindle. Resting upon a shoulder of the collar d', as shown in Fig. 1, is a grinding-wheel E, preferably of emery, said wheel being held so as to rotate with the spindle by means of the tap-screw e taking into the end of the spindle. The collar d is integral with the spindle, and in the outer face of said collar is seated a friction-ring e', preferably of rubber, said ring being held in place by a tap-screw (not shown) taking into the end of the spindle.

To the portion c' of the bracket C is secured a projecting arm F. This arm has a dovetail groove f throughout its length, which groove receives a carriage or slide-block f', said carriage or slide-block being adjustable lengthwise the arm F by means of the slot f^2 in said arm and the set-screw f^3. The carriage or slide-block f' supports an arm G, which arm is provided at its outer end with an upwardly-projecting post g, and on this post is a fixed sleeve g'. Passing longitudinally through said sleeve and rotatably mounted therein is a spindle which carries at its outer end a chuck H, provided with a set-screw h. Said chuck is adapted to receive the needle h' which is to be ground, the needle being held firmly in the chuck by means of the set-screw h. The other end of the spindle is enlarged, as shown at h^2, to provide a convenient means for turning the spindle by hand during the grinding of the needle.

The arm G, with the post g and sleeve g', is rotatably mounted on the slide-block or

carriage f' by means of set-screw g^2, so that the needle h' may be presented at any desired angle to the face of the grinding-wheel E.

The arm B may be slotted, as shown at b' in dotted lines in Fig. 1, so that the stud-screw may also serve as a set-screw to adjust the bracket C and the parts carried thereby to bring the friction-wheel e' into proper relation with the platform A'.

From the above description of Figs. 1 and 2 it will be seen that the bracket C and the parts carried thereby constitute a swinging frame. When the gramophone is used for its ordinary purpose of reproducing sound, said frame is swung on the stud-screw b down to the side of the case, so as to be out of the way.

When the above-described attachment is to be used for regrinding or resharpening the needle, the needle is inserted in the chuck H and secured thereto and the frame C then swung into position shown in Fig. 1, so that the friction-disk e' rests upon the platform A'. The rotation of the said platform imparts a rotary movement to the spindle carried by the sleeve D, causing thereby the emery-wheel E to turn. The needle rests against the wheel E and is turned by hand through the medium of the enlargement h^2 on the end of the spindle carried by the sleeve g'. This operation is continued until the needle is properly repointed, when it is removed from the chuck and the same operation gone through with another needle or until all the needles are repointed, when the frame C is swung to the side of the case. The bracket B and the parts carried thereby may be easily removed from the stud-screw b, or the bracket B, still retaining the other parts, may be easily removed in case of shipment of the gramophone.

In Fig. 3 the arm F is supported upon a suitable bracket M, and the parts carried by the arm F are of precisely-similar construction as described with reference to Figs. 1 and 2. In Fig. 3 I make use of the operative parts of the gramophone within the case A to rotate the grinding-wheel E. In Fig. 3 the gear-wheel I designates a wheel of the operative parts of the mechanism within the case. Said wheel engages a pinion I', mounted on a shaft i, supported in a suitable bracket on the inside of the case A. On the other end of the shaft i is a beveled gear I^2, engaging gear-wheel I^3 on the end of the shaft or spindle I^4, which carries at its outer end the grinding-wheel E. The wheel E is securely held on the shaft I^4 by means of the set-screw i'.

The bracket M of Fig. 3 and the parts carried thereby may be easily detached from the side of the case, and the wheel E may be easily removed from its shaft in case of shipment of the gramophone.

In Fig. 4 I have shown still another embodiment of my invention. In that figure the bracket N carries both the grinding-wheel and the needle-holder, as in Figs. 1 and 2. The relative arrangement of parts is changed, however, to the extent that to the bracket N in Fig. 4 is fixed a sleeve K, in which is rotatably mounted a spindle k. (Shown in dotted lines.) The spindle k carries at its lower ends a collar k' and at its upper end a collar k^2. The collar k' carries the grinding-wheel E, and rotary motion is imparted to said wheel through a belt L, passing around the collar k^2 on the upper end of the spindle k, motion being imparted to the belt L by passing it around the periphery of the platform A', the belt L being held on collar k^2 by means of flanges k^3. To the extension n on the bracket N, I secure the needle-holder, which holder is the same as described with reference to Figs. 1 and 2, by any suitable means, such as a ring O, adjustably held on the extension n by means of a set-screw o. By means of said screw the needle-holder may be adjusted to bring the needle into engagement with the grinding-disk E. If preferred, the needle-holder in Fig. 4 may be mounted on an arm and carriage, the same as in Figs. 1, 2, and 3. The bracket N may be adjustably secured to the side of the case A by any suitable means.

In the form shown in Figs. 1 and 2 the attachment must necessarily be swung out of the way when the gramophone is used for its ordinary purpose of reproducing sound. The forms of the attachment shown in Figs. 3 and 4, however, are such that they remain in operative position even while the gramophone is being used for reproducing, the additional work required for turning the grinding-wheel E imposed upon the operative parts of the apparatus not being of sufficient amount to interfere with the proper working of the apparatus.

Various other ways of attaching the emery-wheel and needle-holder to the gramophone-case will suggest themselves, and I do not limit my invention to the precise details of mechanism above described.

What I claim, and desire to secure by Letters Patent, is—

1. In a needle-grinding attachment for gramophones, a spindle, a grinding-wheel attached thereto, means actuated by the operative mechanism of the gramophone to rotate said spindle, combined with a needle-holder, and means for bringing said holder into operative relation to the said wheel, substantially as described.

2. In a needle-grinding attachment for gramophones, the combination of a frame pivotally mounted on the side of the gramophone-case, a needle-holder carried by said frame, a grinding-wheel also carried by said frame, and means actuated by the operative mechanism of the gramophone to rotate said wheel; whereby said frame and the parts carried thereby may be swung away from interference with the rotation of the disk-carrying platform, substantially as described.

3. In a needle-grinding attachment for gramophones, the combination of a frame mounted on the side of the gramophone-case, a needle-holder carried by said frame, and an adjustable carriage for said holder, a grinding-wheel also carried by said frame, a spindle on which said wheel is mounted, a friction-wheel secured to said spindle and means for swinging said frame so as to bring said friction-wheel into contact with the platform of the gramophone, substantially as described.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD D. GLEASON.

Witnesses:

HORACE SHEBLE,

H. B. GITHENS, Jr.