C. A. MULLER.

STYLUS AND HOLDER FOR THE SAME.

APPLICATION FILED OCT. 17, 1917.

1,290,295. Patented Jan. 7, 1919.

Fig. 1.

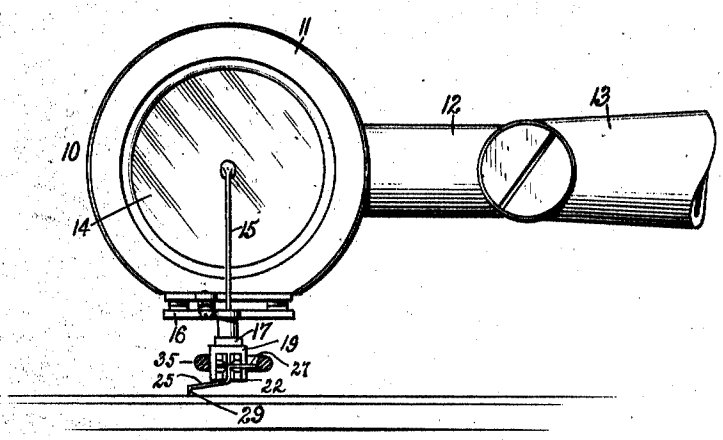


Fig. 2.

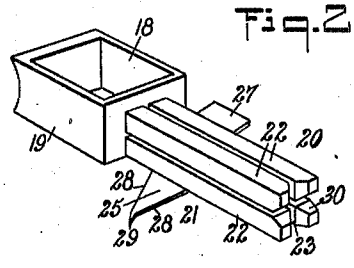


Fig. 5.

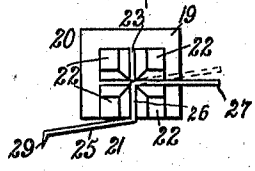


Fig. 3.

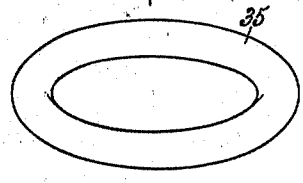


Fig. 6.

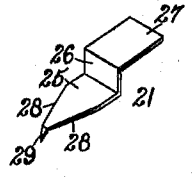
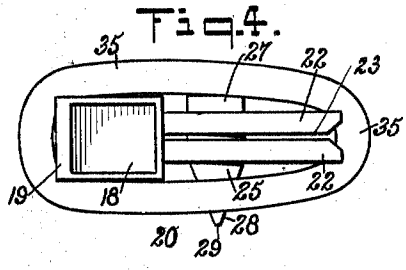


Fig. 4.



WITNESSES

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STYLUS AND HOLDER FOR THE SAME.

1,290,295. Specification of Letters Patent. Patented Jan. 7, 1919.

Application filed October 17, 1917. Serial No. 197,047.

To all whom it may concern:

Be it known that I, CHARLES A. MULLER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Stylus and Holder for the Same, of which the following is a full, clear, and exact description.

The invention relates to phonographs and similar sound reproducing machines, and its object is to provide a new and improved stylus and holder for the same arranged to aid in the reproduction of exceedingly full, clear and natural tones, especially when reproducing the human voice. Another object is to permit the use of a single stylus for playing a large number of records, say about twenty, before requiring a change in the stylus. Another object is to cause the point of the stylus to keep resiliently in contact with every portion of the sound groove thus eliminating all scratching effects. Another object is to eliminate the production of overtones. Another object is to permit the user to quickly place the stylus in position on the holder without the use of screws or similar fastening devices and to allow removal of the stylus from the holder after having played a large number of records, as above mentioned.

With these and other objects in view use is made of a stylus having a flat shank made of resilient material and a point extending integrally from the free end of the shank. Use is also made of a holder arranged for attachment to the arm of the sound box, and bars extending integrally from the said head in a lateral direction, the bars being spaced apart to provide a cross-shaped slot between them for the reception of the stylus to hold the latter in place without the use of screws or other fastening devices.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the stylus and its holder in position on the sound box of a phonograph, part being shown in section;

Fig. 2 is a perspective view of the latter with the stylus in position thereon;

Fig. 3 is a perspective view of the elastic ring for the elimination of overtones;

Fig. 4 is a plan view of the holder, the stylus and the elastic ring with the parts in assembled position;

Fig. 5 is a front end view of the holder and the stylus in position thereon; and

Fig. 6 is a perspective view of the stylus.

The sound box 10 is provided with the usual support 11 attached to the neck 12 of the tone arm 13, and in the said support 11 is mounted the diaphragm 14 engaged at its middle by the arm 15 mounted on a suitable bracket 16 attached to the support 11. The arm 15 is disposed vertically and its lower end is provided with a polygonal boss 17 onto which fits snugly a socket 18 of a head 19 forming part of the holder 20 for the stylus 21. From the head 19 of the holder 20 extends integrally a series of horizontally arranged bars 22 disposed one relative to the other to form a cross-shaped slot 23 between them, as plainly indicated in Figs. 2 and 5.

The stylus 21 is made from a thin flat sheet of resilient material such as steel, and the said piece is bent to form a shank 25 from one end of which rises a connecting member 26 having an integral member 27 disposed approximately parallel to the shank 25 and adapted to be passed into one of the horizontal arms of the cross slot 23, the connecting member 26 engaging the adjacent vertical arm of the said cross slot 23, as plainly indicated in Fig. 5. The shank 25 of the clamping member 27 extends at opposite angles from the connecting member 26 so that the shank 25 is free to vibrate below the holder 20, as will be readily understood by reference to Fig. 5. The clamping member 27 when placed in position in the slot 23 as described is bent into an approxi-

mately right angle position relative to the connecting member 26 so that the stylus is securely held in position in the holder 20.

The sides of the shank 25 converge and terminate in a point 29 extending downwardly and slightly outwardly, as plainly indicated in Figs. 5 and 6. This point 29 is adapted to engage the sound groove in the record. It will be noticed that by the arrangement described the stylus can be readily slipped in position in the cross slot 23 formed by the bars 22 of the holder 20, and the stylus is securely held in this position without the use of screws or other fastening devices owing to the resiliency of the clamping member 27 and that of the corresponding bars 22. It will also be noticed that the shank 25 extends below the holder and is free to vibrate thus insuring a firm contact of the point 29 with all parts of the sound groove in the record to be played at the time.

In order to facilitate the slipping in of the stylus into the slot 23, the outer ends of the bars 22 are preferably beveled, as indicated at 30 in Figs. 2, 4 and 5.

In order to eliminate the production of overtones, use is made of a rubber ring 35 adapted to be stretched around the free ends of the bars 22 and the sides and outer end of the head 19, as plainly indicated in Figs. 1 and 4. As the rubber ring 35 is in stretched condition it exerts pressure on the bars 22 with sufficient force to prevent undue vibration of the bars and thus eliminate the production of overtones.

When the holder and its stylus are in position, as shown in Fig. 1, then the bars 22 extend laterally and likewise the shank 25 of the stylus so that the point 29 engages the sound groove to one side of the vertical center of the arm 15 connected with the diaphragm 14, that is, the point 29 is off center relative to the arm 15 and according to the position of the head 19 on the boss 17 the point 29 may extend to the right, to the left, to the back or to the front. Although I have shown the head 19 detachably connected with the boss 17 of the arm 15 it is evident that the said head may be permanently secured to the arm 15. The rubber ring 35 above mentioned can be readily removed when the phonograph is not in use and it can be readily placed in position after a stylus is in place in the holder.

By constructing the stylus and holder in the manner described, the point 29 is free to yield in its contact with the undulations of the sound groove in the record, at the same time remaining in contact with the undulations to aid in the production of a full, rich and natural tone especially that of the human voice.

By the arrangement described the point 29 is not liable to leave the undulations of the sound groove in the record and it does not scratch and has only a slight rubbing and yielding contact to aid in obtaining a purer tone value.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A stylus for phonographs and similar sound reproducing machines, comprising a shank made of flat resilient material, the shank having an offset intermediate its end portions to dispose the latter in different approximately parallel planes, at least one end portion terminating in an integral point standing at an angle to the plane of the shank.

2. A stylus for phonographs and similar sound reproducing machines, comprising a shank made of flat resilient material, the shank having end portions disposed in approximately parallel planes and having an integral connecting member between the end portions, one of the end portions having tapering sides terminating in an angular integral point.

3. In combination, a stylus and a holder for the same, the stylus being of resilient material and having a flat shank provided with end portions disposed in approximately parallel planes and connected with each other by an integral connecting member, one of the end portions having tapering sides terminating in an integral angular point, the said holder having a head and a series of bars extending from the head and arranged to form a cross slot between them for the reception of a connecting member and the other end portion to support the pointed portion freely and out of contact with the holder to vibrate throughout its length.

4. In combination, a stylus and a holder therefor, the stylus being made of a single flat piece of resilient material having two end portions and a connecting member connecting the end portions with each other, one of the end portions having an angular point, the said holder having a head and four clamping bars extending laterially from the head and forming a cross-shaped slot between them for the reception of the connecting member and the non-pointed end portion.

5. In combination, a sound box, a stylus and a holder attached to and extending laterally relative to the sound box, and the stylus having a resilient shank provided with attaching means engaging the said holder, the free end of the stylus having an integral point standing at an angle to the plane of the shank.

6. In combination, a sound box, a stylus

and a holder having a head and resilient arms, the head being attached to the sound box and the arms extending laterally, the said stylus having a resilient laterally extending shank provided at one end with attaching means slidably engaging the said holder bars, the free end of the shank terminating in a depending point.

7. In combination, a holder having a head and a stylus support, a stylus removably attached to the said support, and a ring surrounding the said head and support under tension to check overtones.

8. In combination, a holder having a head and a stylus support, a stylus removably attached to the said support, and a ring made of rubber and surrounding the said head and support under tension to check overtones.

CHARLES A. MULLER.