

S. LEVIN.
STYLUS FOR SOUND REPRODUCING MACHINES.
APPLICATION FILED JUNE 15, 1909.

958,412.

Patented May 17, 1910.

Fig. 1.

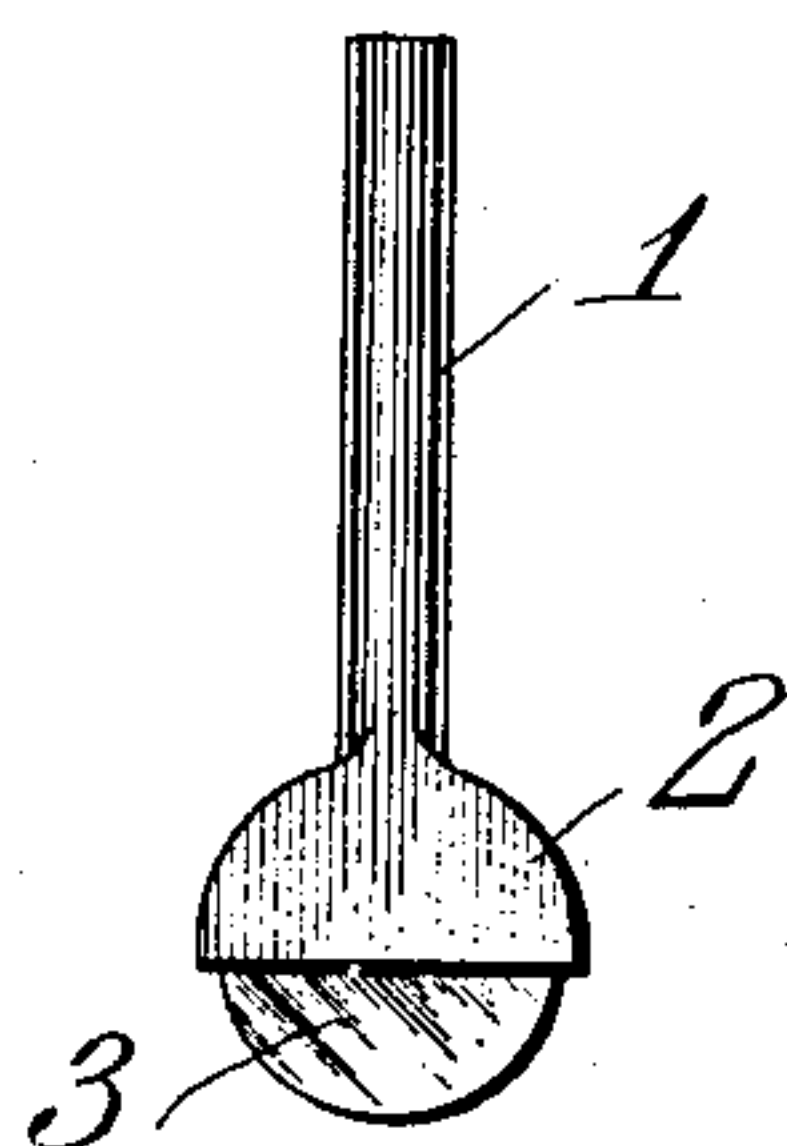


Fig. 2.

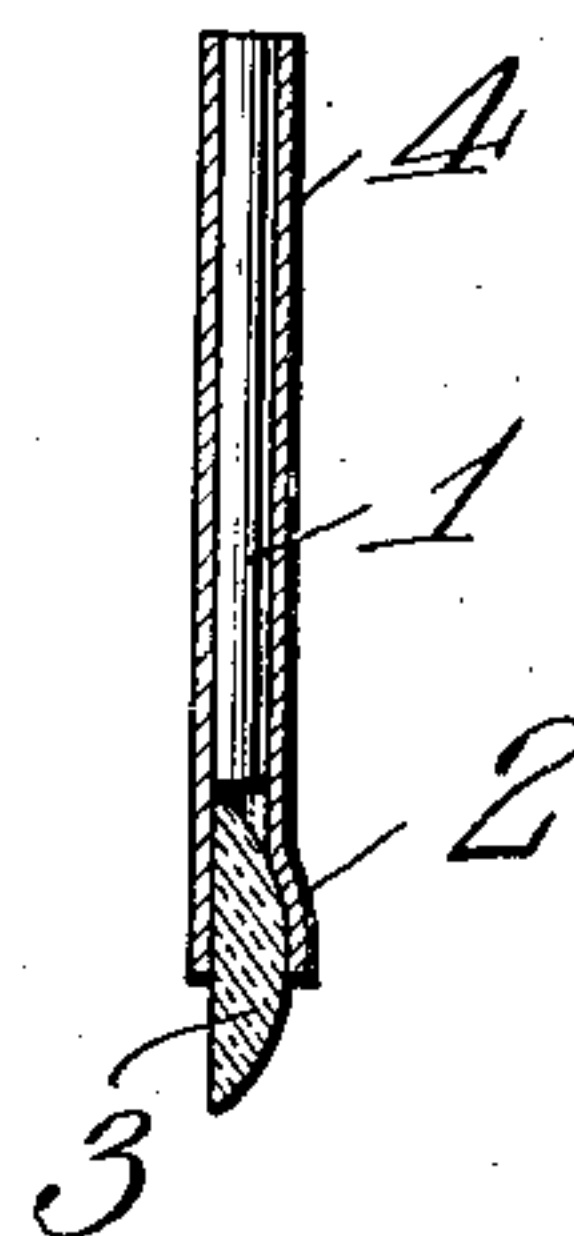
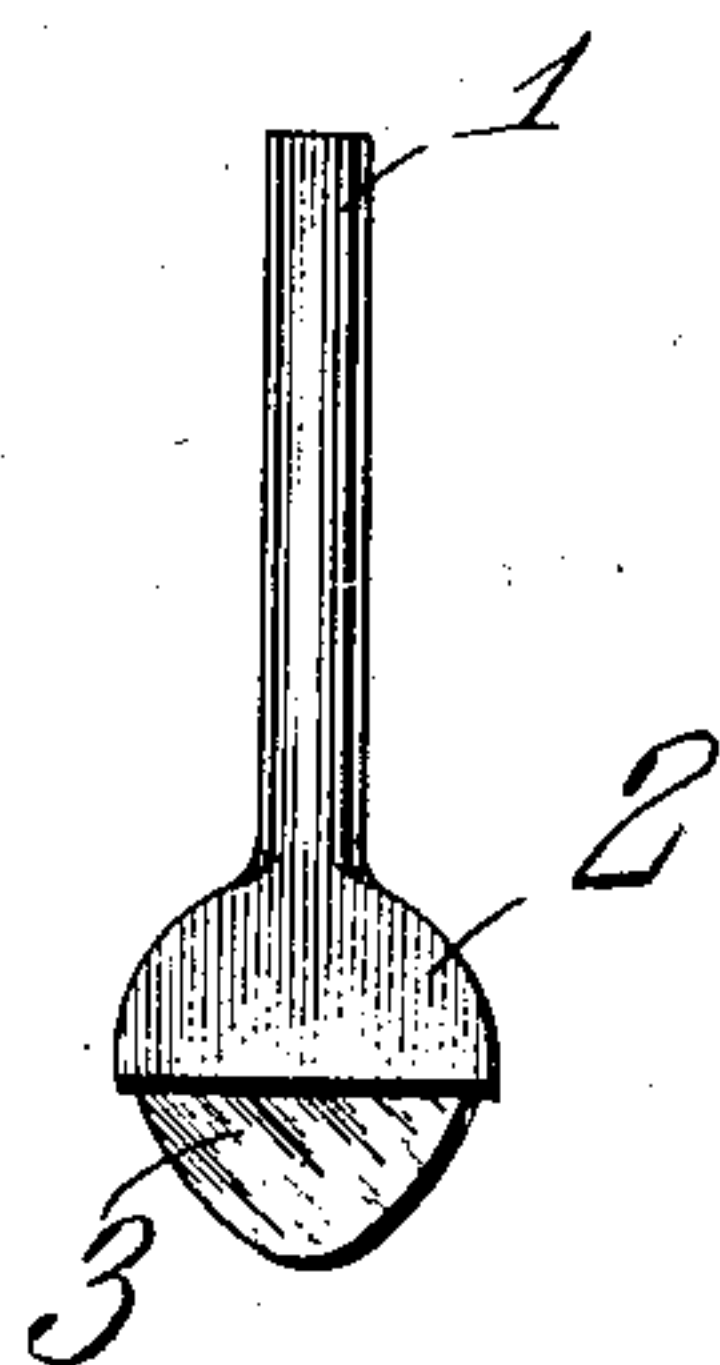


Fig. 3.



Fig. 4.



Witnesses

E. J. Hunt
F. J. Chapman.

Inventor

Samuel Levin

By

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL LEVIN, OF HIGHLAND PARK, ILLINOIS.

STYLUS FOR SOUND-REPRODUCING MACHINES.

958,412.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed June 15, 1909. Serial No. 502,297.

To all whom it may concern:

Be it known that I, SAMUEL LEVIN, a citizen of the United States, residing at Highland Park, in the county of Lake and State of Illinois, have invented a new and useful Stylus for Sound-Reproducing Machines, of which the following is a specification.

This invention has reference to improvements in styli for sound reproducing machines and is designed more especially for use in connection with the disk or gramophone type of sound reproducing machine.

In the gramophone type of sound reproducing machine the sound record is in the form of a sinuous groove of even depth and the diaphragm of the reproducing sound box is vibrated by the engagement of the side walls of the groove with the stylus, the action of the groove on the stylus being usually from both walls of the record groove, but one wall receives more of the wear from the stylus than the other because in this type of machine the sound record groove itself is utilized for feeding the sound box across the record tablet. The stylus most generally employed in connection with sound reproducing machines of the gramophone type is in the form of a steel needle point which enters and substantially fills the groove from wall to wall, or if not, quickly becomes worn to the proper shape, but the continual wear of the record groove against the steel needle, though most pronounced on the needle, is still noticeable after a number of reproductions upon the record tablet itself. This is particularly true should the operator omit to change the stylus for each new tablet reproduced or after one or two reproductions of the same tablet. The necessity of changing the stylus for each reproduction becomes onerous or the changing of the stylus is neglected through carelessness.

It is the object of the present invention to avoid these troubles and at the same time provide a stylus which after being once adjusted to the sound box may be used again and again indefinitely without the necessity of change and without material wear upon the sound record tablet.

It has long been recognized that a jewel point because of its hardness and wear resisting qualities as well as its rigidity would make an ideal reproducing stylus for the gramophone type of sound tablet. However such jewel points have been patterned after the usual steel needle point used in connec-

tion with sound reproducing machines of the gramophone type, but because of the brittleness of the material used, such styli have not proved successful since the points become quickly broken and the sharp edges thus produced are very destructive to the record tablet.

By the present invention the styli are made with jewels for the active end and these jewels are so constructed as to no longer be fragile while practical tests have shown that the life of these styli is almost unlimited.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,

Figure 1 is an elevation of a stylus constructed in accordance with the present invention. Fig. 2 is a longitudinal section thereof. Fig. 3 is a bottom plan view, and Fig. 4 is a view of a somewhat modified form.

In accordance with the present invention the stylus is made of a body portion in the shape of a tube 1 expanded at one end into a holder 2 of suitable shape to receive and retain a substantially plano-convex jewel 3. This jewel may be of any suitable material, but it is preferably made of garnet, though sapphire or any of the other jewels used in connection with sound reproducing machines may be utilized if so desired. The material employed forms no necessary part of the present invention. The head 2 may be so shaped as to grasp the jewel 3 so firmly that the latter is incapable of independent movement with relation to the head or the stem 1.

Of course it will be understood that the periphery of the jewel need not include a complete circle but the active portion, that is the portion projecting beyond the head or holder should in the structure shown in Fig. 1 include at least a segment of a circle. The active portion of the jewel has the periphery rounded in similitude to the point of the usual needle stylus used in connection with the gramophone type of sound reproducing machine, so that this portion of the jewel may enter the groove and rest on the bottom thereof.

The stem 1 being tubular may be reinforced by a central core 4 of steel or other hard resisting material, or the stem 1 and

head 2 may be made of a solid piece of metal, such as steel and the jewel 3 may be set therein in firm engagement with the head 2. The core 4 may be omitted from the tubular stem for soft effects, while for loud effects the core may be used or the stem may be solid.

In Fig. 4 a slight modification of the form of the jewel 3 is indicated, the active end of the jewel being shown as parabolic in shape but still retains the characteristic of having one face substantially flat and the other face convex.

The stylus as a whole is made of about the size of the ordinary steel styli used in the gramophone type of sound reproducing machines, the showing of the drawings being enlarged.

When the stylus is in place in the sound box the convex side of the stylus is against the feeding wall of the sound groove while the flat side of the stylus is toward the non-feeding wall of the groove.

The walls of the record groove are either curved on arcs described about the center of the tablet as an axis or these walls are in the form of sharper curves due to the sinuities of the groove corresponding to sound waves.

The convex side of the jewel point 3 engages against the active wall of the groove, and being rounded has no wearing effect upon the wall of the groove such as occurs from the tongue at the end of the steel needle which is formed on the needle stylus as soon as the tablet has made a few turns.

Because of the plane surface of the stylus presented to the inactive wall of the groove there is no material wearing of this wall.

By making the jewel nearly or quite circular so far as the projecting portion of the jewel is concerned it may be made quite bulky and correspondingly strong and in this manner the fragility of jewel styli as heretofore provided for the gramophone type of reproducing machines is avoided and the stylus becomes a practical device.

What is claimed is:—

1. A reproducing stylus for sound reproducing machines of the gramophone or disk type, having its active end formed of a plano-convex jewel with the plane and convex surfaces joined by a rounded edge.

2. A stylus for sound reproducing machines of the gramophone or disk type elongated in the direction of travel of the sound record groove and having the face against which the propelling wall of the sound record groove acts convex.

3. A stylus for sound reproducing machines of the gramophone or disk type elongated in the direction of travel of the sound record groove and having the face against which the propelling wall of the sound record groove acts convex and the opposite face plane.

4. A stylus for sound reproducing machines, comprising a metallic stem terminating in a head, and a plano-convex jewel mounted in said head and constituting the active end of the stylus, the convex side of the jewel being adapted to receive the feeding thrust of the sound record groove.

5. A stylus for sound reproducing machines comprising an active end formed of a jewel, a tubular stem having one end formed to receive and retain the jewel point, and a core within the tubular stem for stiffening the same.

6. A stylus for sound reproducing machines having an active end in the form of a jewel of greater extent in the direction of the length of the sound record groove than in the direction of the width of the groove, and having a rounded edge adapted to be engaged by the propelling wall of the groove.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SAMUEL LEVIN.

Witnesses:

FRED SCHAEFER,
H. L. BOWEN.