

No. 849,425.

PATENTED APR. 9, 1907.

F. PETMECKY.

NEEDLE FOR GRAPHOPHONES AND THE LIKE.

APPLICATION FILED JAN. 10, 1906.

FIG. 1,

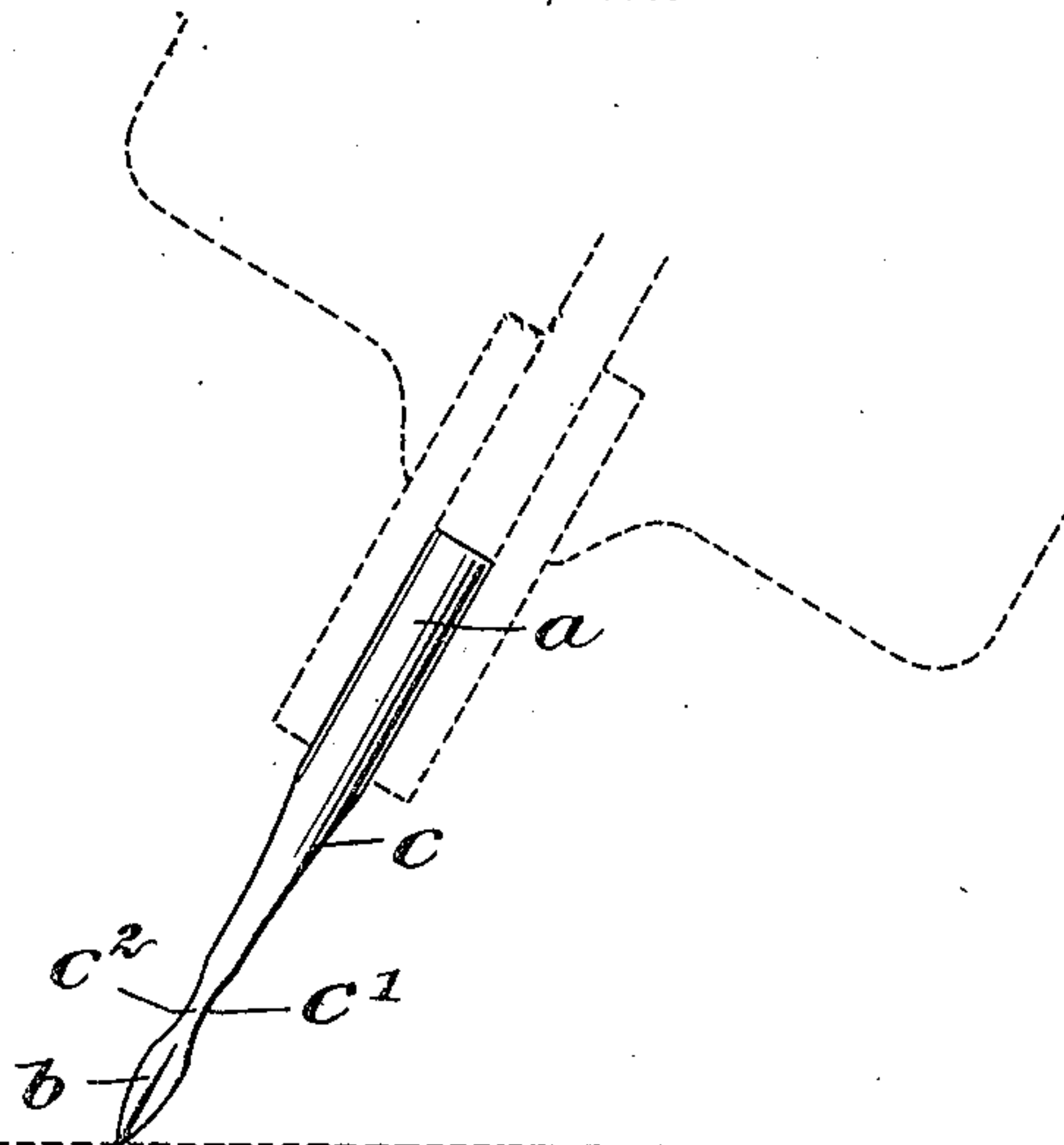
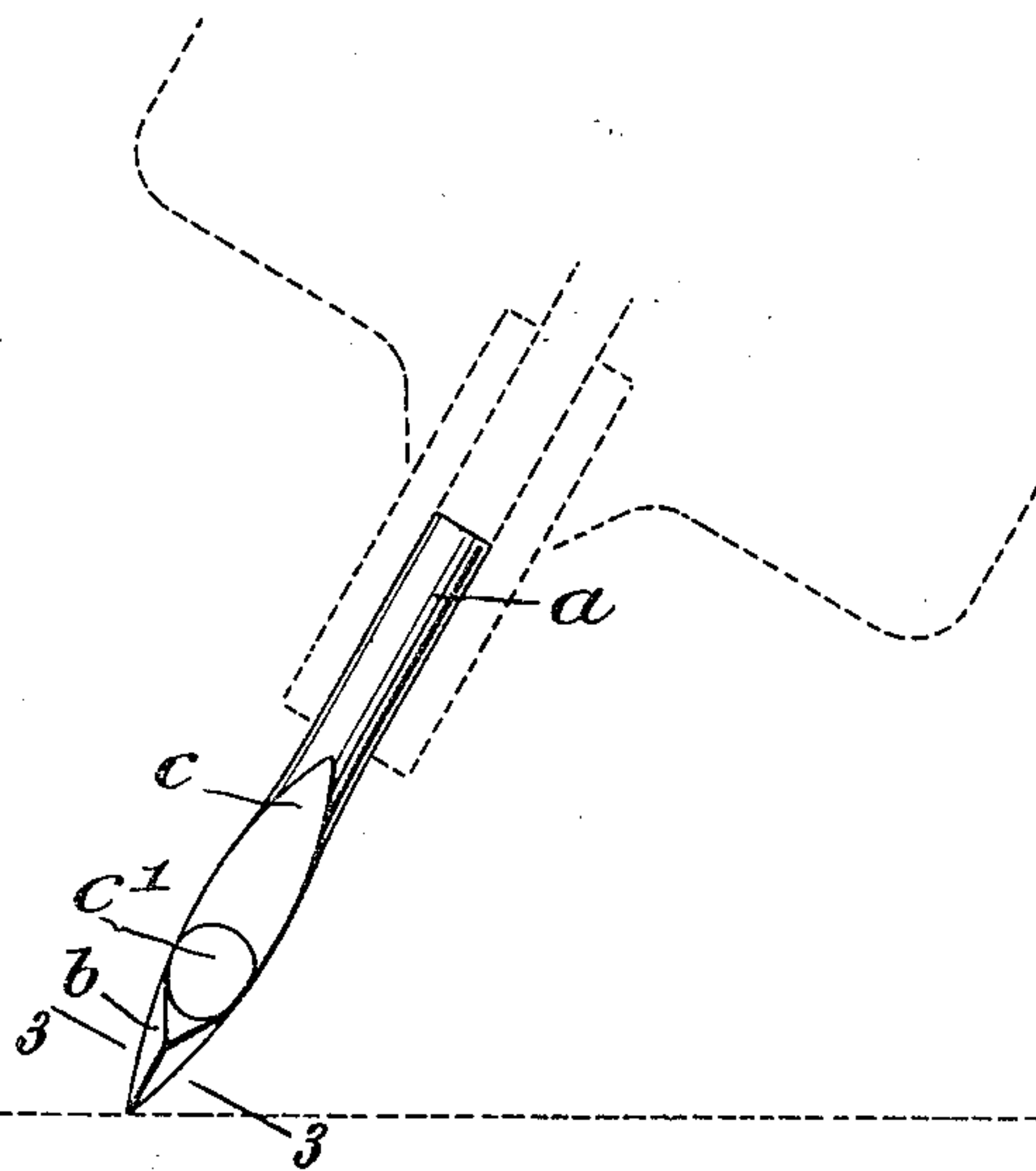
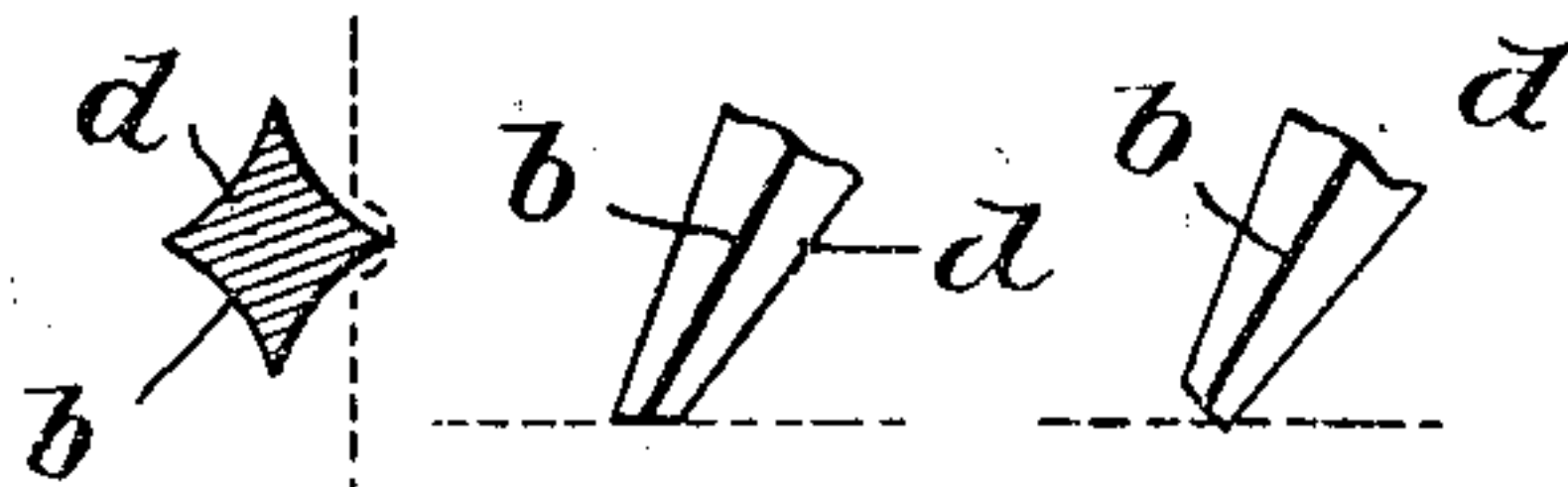


FIG. 2,



WITNESSES: FIG. 3, FIG. 4, FIG. 5,

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NEEDLE FOR GRAPHOPHONES AND THE LIKE.

No. 849,425.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed January 10, 1906. Serial No. 295,380.

to all whom it may concern:

Be it known that I, FRED PETMECKY, a citizen of the United States, and a resident of Austin, in the county of Travis and State of Texas, have invented a new and Improved Needle for Graphophones and the Like, of which the following is a full, clear, and exact description.

My invention relates to improvements in needles or styluses for graphophones and machines of that character, the principal objects being to provide for modifying the tone produced and to provide for increasing the durability of the needle. The first of these objects I attain by modifying the form of the body of the needle in such a manner as to permit vibrations in a certain manner, and the latter I provide for by producing a point of a new form, which when used on one side will cause a sharpened point to appear on the other, thus permitting the needle to be reversed after each operation and leaving a sharpened point ready for the next operation.

When using needles of an oval cross-section on disk-machines, the surface which comes in contact with the record is worn off in a short time and a new needle has to be substituted for practically every record which is to be operated upon. If the expedient of turning the needle over is employed, it is found that the wear of the record on the point has produced burs upon the other side, which prevent its being used in that manner. Needles are also usually made with a practically uniform cross-section from the shank to the point. This does not permit sufficient vibration. In order to produce a fine tone, I have discovered that it is desirable to reduce the cross-section of the needle in a position just above the point, so that while the point itself is rigid it is supported by a flexible section of the shank, and consequently it is capable of a certain degree of motion.

While I am aware that a flattened shank has been employed for an unknown purpose, I believe that I am the first to produce a needle or stylus of this character having a flattened portion located in exactly this position.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference

indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a stylus constructed in accordance with the principle of my invention, showing how it is used to produce a loud tone. Fig. 2 is a similar view showing how the needle is used to produce a soft tone. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is an elevation of the needle as it appears after the point is worn by use. Fig. 5 is a similar view showing the needle when reversed and ready to commence operations again.

My needle is provided with a shank *a* of the usual character and with a point *b*. Between these portions and extending from the rear end of the point to a place on the shank which is below that at which the shank is secured in the holder is a flattened section *c*. This section is not thin enough to have any material effect upon the vibration of the point, and at the lower end of the flattened portion *c* are a pair of concave surfaces *c'* on the two sides of the needle, which include between them a thin section *c''*, that permits vibrations of the point itself. The purpose of this feature will be well understood by those familiar with musical instruments. It is of course understood that the needle conducts the vibrations to the sound-diaphragm or to the box, and being thinned just at this point as low as possible on the needle without reducing the thickness of the point itself a finer tone is imparted when musical compositions are played upon the instrument. The tone is also modified by the position of the flattened surface. When the flattened surface is placed toward the record, it gives a loud tone, while with the edge toward the record a soft tone is produced. At angles between these two extremes it gives tones of intermediate quality.

In order to provide the self-sharpening feature which I have mentioned above, I make the point of the needle in the general shape of a pyramid with concave sides *d*. It will be seen by reference to Figs. 3, 4, and 5 that when the needle is drawn along the record with one of the edges in the groove the wearing of the needle at its point, as shown in Fig. 4, will merely produce a sharpened point on the opposite side, so that when the needle is turned around one hundred and eighty degrees, as is shown in Fig. 5, the point will be

ready for action. Any burs produced will be formed on the inside of the concave portions and will not interfere with the use of the needle in conducting sound. Further-
5 more, the needle can be used for a large number of operations, reversing it each time without injuring the record. This greatly increases the durability of both the needle and the record.

10 While I have shown the needle-point as provided with concave surfaces, it is to be understood that the principle of my invention is capable of being carried out with flat surfaces provided the needle is turned one
15 hundred and eighty degrees each time it is changed; but when it is desired to change the tone, as has been explained above, the needle may be turned only quarter of a turn or may be placed at some other angle to the original
20 position, and when this is done the concave surfaces are necessary in order to provide for turning the burs formed away from the record.

Having thus described my invention, I claim—

1. A needle of the character described having a thin portion extending along the body thereof above the point, and a flat flexible portion at the base of said thin portion and at the head of said point, the point having a
30 general pyramidal shape.

2. A needle or stylus for graphophones and the like, having a thin flat flexible portion located immediately at the rear of the point of the needle, the point having a general py-
35 ramidal shape with concave sides.

3. A needle or stylus for graphophones and the like having a pyramidal-shaped point with concave faces.

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

FRED PETMECKY.

Witnesses:

J. W. CHENNEVILLE,
A. GRAVES.