Jan. 31, 1950 A. D. KONDRATH 2,495,934

PHONOGRAPH NEEDLE

Filed Sept. 21, 1945

Fig. 1

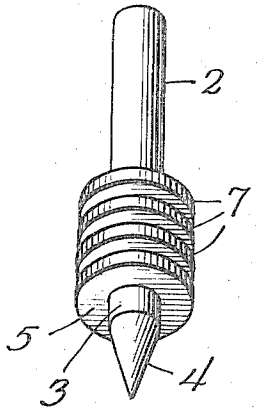


Fig. 2

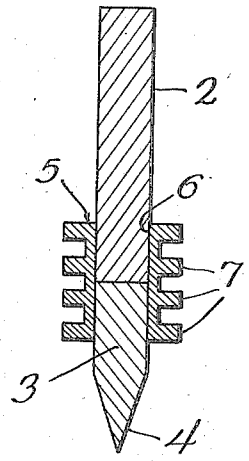


Fig. 3

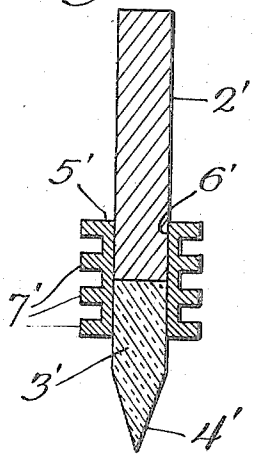
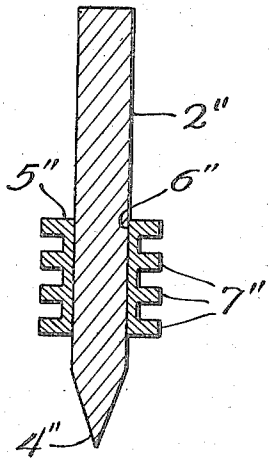


Fig. 4



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UNITED STATES PATENT OFFICE

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PHONOGRAPH NEEDLE

Andrew D. Kondrath, Leyden, Ill.

Application September 21, 1945, Serial No. 617,728

1 Claim. (Cl. 274—38)

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This invention relates to a needle of the type used in the tone arm of a phonograph or any similar sound reproducing instrument.

It is an object of this invention to provide a durable phonograph needle with simple and efficient means for improving the tone of reproduction. Other objects of this invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a detail perspective view of a needle showing one embodiment of my invention;

Figure 2 is a longitudinal sectional view of the needle shown in Figure 1;

Figure 3 is a longitudinal sectional view showing another embodiment of the invention; and

Figure 4 is a longitudinal sectional view of another embodiment of the invention.

In the drawings, the reference numeral 2 indicates the shank of the needle which is conventionally secured to the tone arm of a phonograph by means of a set screw. The lower portion 3 of the needle, pointed as indicated at 4, is preferably made of an extremely tough steel that may be treated specially to make the point more durable. Many special alloys have been used to make phonograph needles because of the durability required to maintain the sharpness of the point for repeated playing of phonograph records. However such hard steels are so brittle that sometimes repeated tightening of the set screw causes the needle to break. In my improved structure this disadvantage is overcome by making the shank 2 of high speed tool steel or some other steel not as brittle as the steel used in the pointed end in order to withstand the strain repeatedly of tightening the set screw.

A sleeve 5 is provided with a central aperture 6 adapted to fit snugly over the shank 2 and the lower end 3 to hold the two parts together securely. The sleeve is provided with a plurality of radially extending fins 7. Although the number and exact proportions of the fins are not essential I have found that the best results are obtained with four fins with the intervening spaces each of a height equal to the thickness of the fins 7. The sleeve 5 is preferably made of aluminum but may be made of lead, zinc or any other metal that will not transmit vibrations as steel does.

In playing phonograph records with an ordinary needle the reproduction of the recorded sounds is often distorted by scratches in the record which produce vibrations of high frequency in the needle. Distortion is also caused by sympathetic vibrations set up in the ordinary needle which transmits undesirable sustained vibration

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to the tone arm to which the needle is secured. The fins 7 on the sleeve 5 absorb vibrations of certain high frequencies and only the desirable frequencies filter through to the tone arm.

In the embodiment of my invention illustrated in Figure 3 the shank 2' is the same as in the embodiment of Figure 2, but the lower portion 3' of the needle is made of glass or some other vitreous material. The sleeve 5' and the filtering fins 7' are the same as the sleeve 5 and fins 7.

The embodiment illustrated in Figure 4 comprises a unitary needle 2'' preferably made of high speed tool steel, although it is obvious that this needle may be made of tougher steel. In cases where high speed tool steel is used I prefer to impregnate the steel in a toughening solution in order to increase the durability of the needle.

Although I have described three embodiments of my invention in detail, it will be understood that the description thereof is illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact details of construction described, except as limited by the appended claim.

I claim:

A phonograph needle comprising a metal shank and a sleeve mounted on said shank, said sleeve being provided with a plurality of equally spaced radial fins, each of said fins being of a thickness approximately equal to the space between adjacent fins, whereby vibrations of high frequency originating at one end of said needle are absorbed by said fins.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,039,208	Steinert	Sept. 24, 1912
1,084,573	Claussen	Jan. 13, 1914
1,235,154	Owen et al.	July 31, 1917
1,490,875	Wellman	Apr. 15, 1924
1,768,704	McCarter	July 1, 1930
2,031,948	Harrison	Feb. 25, 1936
2,140,392	Nabers	Dec. 13, 1938
2,342,813	Mason	Feb. 29, 1944

FOREIGN PATENTS

Number	Country	Date
8,562	Great Britain	Aug. 26, 1909
202,493	Great Britain	Aug. 23, 1923
683,271	France	Feb. 25, 1930