Jan. 7, 1936. L. E. TURNER 2,026,760

SOUND REPRODUCING OR RECORDING NEEDLE

Filed March 11, 1935



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Patented Jan. 7, 1936 2,026,760

UNITED STATES PATENT OFFICE

2,026,760

SOUND REPRODUCING OR RECORDING NEEDLE

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Application March 11, 1935, Serial No. 10,372

4 Claims. (Cl. 274—38)

The invention relates to styli or needles for sound reproducing and recording devices.

The objects of the invention are to provide a metallic needle, which is not susceptible to rust or corrosion; which is provided with a tip or record-engaging portion of a wear-resisting alloy whereby wear from use is practically eliminated so that the volume of sound reproduced or recorded remains substantially constant after prolonged use; which is provided with a very hard wear-resisting record-engaging portion which will retain its correct shape and usefulness in sound reproduction or recording much longer than needles with the alloys heretofore used; which is provided with a record-engaging portion formed of an alloy-metal having no grain and of exceptional hardness and which is adapted to receive a very smooth finish and shape to insure a smooth line contact with sound-creating undulations forming the side walls of a groove in a record, to achieve perfect sound reproduction or recording of sound and to minimize scratching and record noises; and other objects which will appear from the detailed description of the invention.

These objects are attained primarily by forming the record-engaging portion of a metallic needle of a hard wear-resisting alloy known as "titanium carbide." This alloy practically eliminates wear so as to maintain at substantially constant value the volume and quality of sound reproduced or recorded during prolonged use of the needle. It is not susceptible to rust nor corrosion and is efficient in effecting full tone reproduction or recording. It has no grain and is adapted to receive a very fine smooth finish and to be properly shaped to insure a smooth line contact with the side walls of the groove in a record to minimize scratching and insures substantially perfect reproduction or recording of sound.

The invention consists in the several novel features hereinafter set forth and more particularly described by claims at the conclusion.

In the drawing, the figure is a perspective of a needle embodying the invention.

In the exemplification of the invention illustrated in the drawing, the needle comprises a round body portion or a shank *a* usually formed of steel, phosphorous bronze, Monel metal, or other suitable metal and a record-engaging portion or tip *b* fused or otherwise suitably secured to the metal forming the shank. The record-engaging portion *b* is formed of an alloy-metal known as "titanium carbide." The tip or record-engaging portion may be of any suitable shape known in the art. In manufacturing the needle, the record-engaging portion *b* is fused to the shank *a* and, if desired, swaged into the desired shape to form the record-engaging portion of the needle. The tip portion *b* is then ground and shaped to fit the grooves in the record so that no appreciable weight is carried by the undulations forming the side walls of the groove. This is done by slightly rounding the lower end of the needle so the weight of the needle and sound box will be centered upon the smooth bottom of the groove to minimize the usual record noises, such for example, as are produced by surface scratching.

When the record-engaging portion is made of titanium carbide, which has no grain and is of extremely fine texture, substantially no wear will result from a line contact with the sound-creating undulations and consequently the usual record noises are eliminated. This alloy eliminates wear from friction between the needle and the undulations because the alloy has no grain and is of extremely fine texture. This results in keeping the needle serviceable for efficient sound recording or reproduction longer than known types of bi-metallic needles which have been formed of coarse grained or porous metal alloys of lesser hardness than titanium carbide. The titanium carbide record-engaging portion has a hardness of approximately 9.3 and is practically indestructible, and by reason of its extremely fine non-porous texture having no grain, the point can be highly polished to eliminate wear and scratching. The record-engaging portion retains its proper shape relatively to the groove, so that it does not scratch or unduly wear the record.

The invention is not to be understood as restricted to the details described and may be used in connection with a shank portion of any suitable metal or metal-alloy and may be used in a record-engaging portion of any suitable known shape.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A phonograph stylus comprising a record-engaging portion containing titanium carbide.

2. A phonograph stylus comprising a shank of suitable metal and a record-engaging portion containing titanium carbide.

3. A phonograph stylus comprising a body of suitable metal and a metal tip composed of titanium carbide.

4. A phonograph stylus comprising a body of suitable metal and a metal tip composed of titanium carbide fused on the shank.

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