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PHONOGRAPHY

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903,200.

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LINES OF RECORD PRODUCED WITH
NON-CONDUCTING MATERIAL
ON ELECTRO-CONDUCTIVE BASE.

BASE WITH RECORD THEREON
MADE ANODE OF ELECTROLYTIC
APPARATUS.

BASE AS ANODE SUBJECTED
TO ELECTROLYTIC ACTION.

BASE WASHED AFTER ELEC-
TROLYTIC ACTION.

Witnesses

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PHONOGRAPHY.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Phonography, of which the following is a specification.

My invention relates to an improvement in phonography. Its object is to produce permanent records in a simple and efficient manner.

The first step in practicing my invention is to produce the lines of record with a non-conducting material on a conducting support.

For the purpose of my invention, it is immaterial if the non-conducting material consists of a fluid or a solid and it is immaterial if these lines of record are marked on the support with actual contact of the stylus or writing means, or without actual contact of said stylus; but it is necessary that the support should be conducting and the lines of record non-conducting, and I prefer that the support should be a metallic plate, such for instance as a plate of copper, and if a fluid is used for making the lines of record, the same may consist of a liquid containing dissolved shellac or other resinous matter, and it is preferred that this fluid should be colored so that the lines of record may be made visible to the eye of the operator.

After the lines of record have been produced and the ink (if such is used) has dried, the plate with its record lines is made the anode of an electrolytic apparatus, and if a copper plate is employed, the electrolyte should preferably consist of a diluted solution of sulfate of copper. The cathode may consist of any suitable material in any preferred shape. When a current of electricity is sent through this apparatus, such parts of the cathode as are left free from the recording lines will be eaten away and such parts as are covered by the non-conducting lines are left in their original state.

When it is found that the spaces between the lines are deepened enough, then the plate is taken out and washed, and may be used to produce copies therefrom.

I am aware, that records have been pro-

duced on metallic plates with a material adapted to resist the action of an etching fluid and that then the plate is subjected to a process whereby the material left free is eaten out—so to speak—by the acid, but in practice, it was found that even the improved etching processes are not capable of producing a clear demarcation between the lines and the etched out material and when such plates are subjected to microscopic examination, it is found that the edges of the line are ragged and the sound produced from such records is not as clear as desired.

Experiments have proven that if instead of the etching fluid, the action of the current is made to differentiate the height between the lines of record and the other parts of the plate, the lines are more clearly defined and do not have the ragged edges as with the etching process.

Different densities of current may be used, but I found that it is best to use a very small amperage, such for instance as one ampere to ten square inches exposed. The smaller the current, the longer time is required to produce the necessary result.

In the accompanying drawing is disclosed a diagram illustrating the steps of the here-in described method.

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

1. The method of producing permanent sound records, which consists in first forming on an electro-conductive base a variable line of non-conducting material in accordance with the variations of sound waves, then making said base the anode of an electrolytic apparatus, and subjecting the base, while still the anode of the electrolytic apparatus, to the action of a current of electricity flowing through said apparatus.

2. The method of producing permanent sound records, which consists in first forming on the surface of a metallic plate a variable line of non-conducting material in accordance with the variations of sound waves, and then causing the free surface of said plate to be ionized through the action of an electric current in an electrolytic apparatus.

3. The method of producing permanent sound records, which consists in first form-

ing on an electro-conductive base a variable
line of non-conducting material in accord-
ance with the variations of sound waves, and
then differentiating in height the lines of
5 record and the free surface of said base
through the ionizing action of an electric
current in an electrolytic apparatus.

In testimony whereof I affix my signature
in presence of two witnesses.

ISIDOR KITSEE.

Witnesses:

MARY C. SMITH,
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