

I. KITSEE.
PRODUCING PHONOGRAPHIC RECORDS.
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903,198.

Patented Nov. 10, 1908.

Fig. 1.

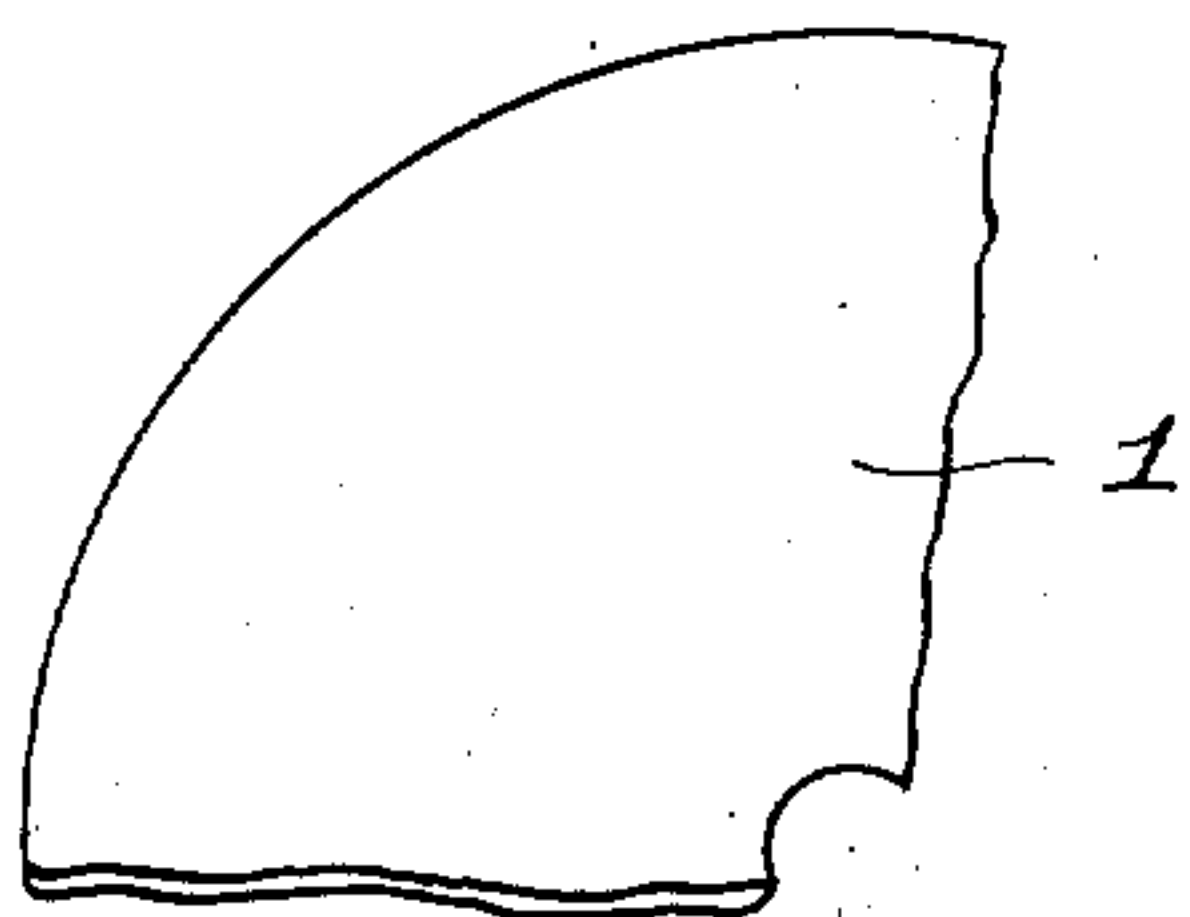


Fig. 2.

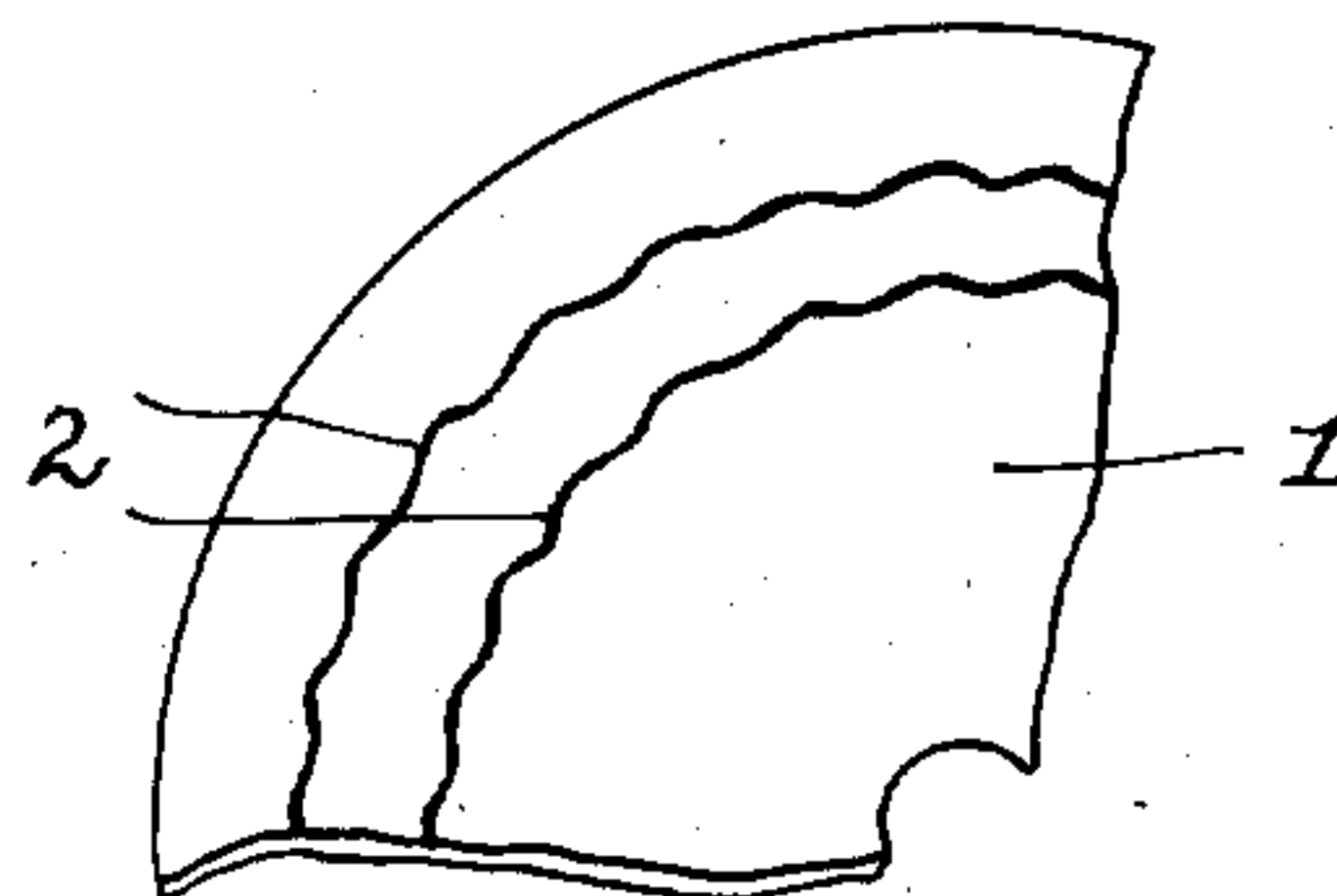


Fig. 3.

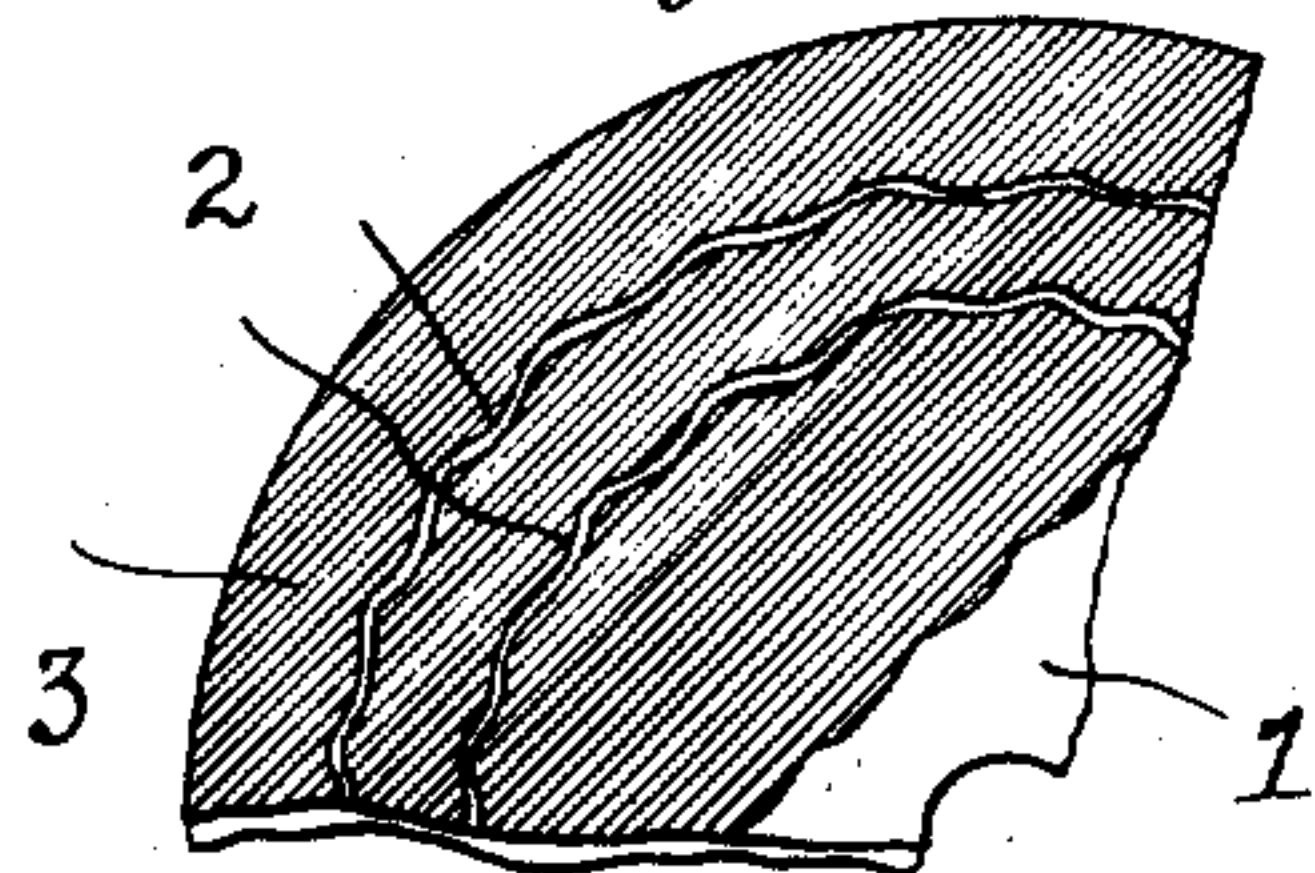
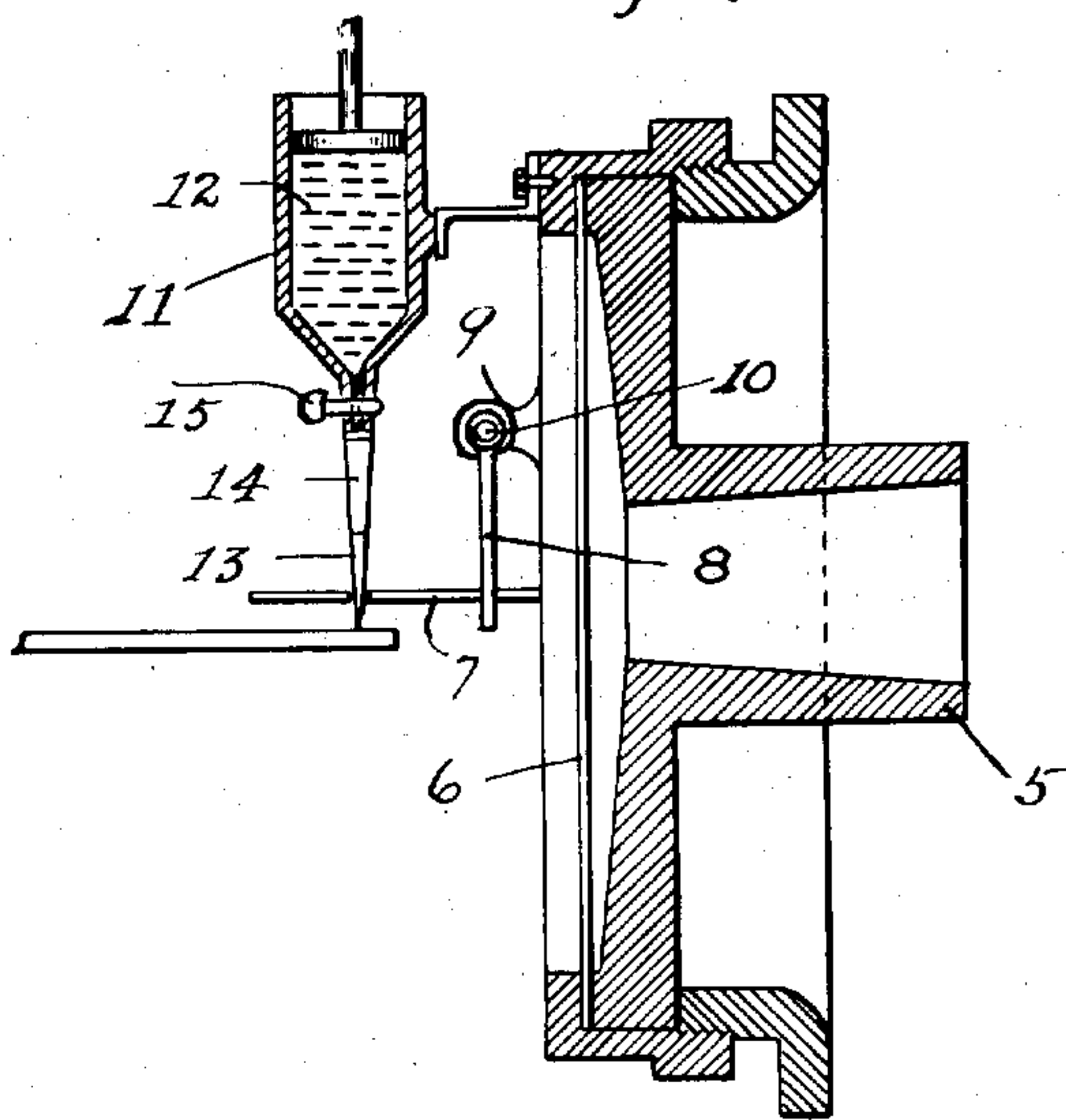


Fig. 4.



WITNESSES:

Edw. R. Stille
Mary C. Smith

I. Kitsee INVENTOR

UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

PRODUCING PHONOGRAPHIC RECORDS.

No. 903,198.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed March 6, 1908. Serial No. 419,576.

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 Producing Phonographic Records, of which the following is a specification.

My invention relates to an improvement in producing phonographic records. Its object is to produce such records in a simple and efficient manner.

In practicing this, my invention, I prefer to make use of a vibrating diaphragm with the aid of which a non-conducting material is deposited on a conducting surface in accordance with the vibrations of said diaphragm produced by the generated sound waves.

In the drawing Figure 1 is a plan view in conventional form illustrating the conducting material on which the lines of record are later on to be marked. Fig. 2 is a similar view of the same material with the sound record marked thereon. Fig. 3 is a similar view of the conducting material having marked thereon the lines of record and provided with the electro-plate as later on to be more fully explained. Fig. 4 is a cross section of a recording mechanism provided with the preferred means of depositing the material on the conducting plate.

1 is the conducting support; 2 the lines of record and 3 the electro-deposit on said plate.

In Fig. 4, 5 represents the mouth piece; 6 the diaphragm; 7 the stylus attached to the diaphragm. This stylus is here partially supported by the movable lever 8 attached to the bar 9 held in position here by the support 10. 11 is the reservoir containing the non-conducting fluid 12. 13 is the fluid outlet here shown as connected with the reservoir with the interposition of the flexible tube 14. 15 are the means to stop the flow of the fluid.

The *modus operandi* of practicing this, my invention, is as follows:—A metallic plate, such for instance as a plate of copper, is first prepared in a manner so that the surface of same is adapted to receive a deposit of metal with the aid of an electric current. For this reason, the plate has to be free from all grease and foreign substances. A non-conducting material is then deposited on this plate with the aid of the

vibrating diaphragm of a phonographic transmitter. As stated above, I prefer that this material should be deposited without necessitating the actual contact of the stylus with the plate whereon such material has to be deposited. I, therefore, produce a liquid or fluid in a manner so that the same should be non-conducting. I have tried different fluids and found that either a solution of shellac in alcohol, or a solution of rosin in hydrocarbon will answer for all practical purposes.

I prefer that the stylus, which is supported by the vibrating diaphragm of a recorder, should be provided with an orifice and should be in operative relation with a reservoir containing the necessary liquid or fluid. Beneath this orifice, I place the metallic plate adapted to receive the record. The non-conducting fluid or liquid should issue from the reservoir in a very thin stream; and as the stylus with its orifice has to vibrate in accordance with the vibrations of the diaphragm proper, it is obvious that the liquid or fluid will be deposited on the solid surface in a manner so as to reproduce these vibrations. After having deposited thereon the required recording lines, the conducting plate is subjected to the process of electroplating. As again stated above, I prefer to use a copper plate and I also prefer to electro-plate the same with an additional copper. The mode of producing such electro-deposition is well known. The plate is made the cathode in an electrolytic apparatus in which the electrolyte consists of a solution of sulfate of copper. This anode is a copper in convenient form. When a plate, prepared as above, is subjected in such apparatus to the action of the current, the copper will be deposited only on such parts of the surface of this plate as are conducting, but such parts as are made non-conducting, will be left free from the deposit; and as the lines of record are non-conducting, it is obvious that these lines will remain free from the deposit. A plate therefore, having the lines of record marked on its surface with a non-conducting material will, after it is taken from the electrolytic apparatus, have all parts of its surface with the exception of such parts which represent the lines of record, raised. The height between the lines of record and the other parts of the plate will, therefore, be differentiated and the lines of record them-

selves will look as being in intaglio or depressed as to the other parts of the surface. From such a plate, copies can then be made in accordance with any of the well known methods.

I have illustrated and described one apparatus with the aid of which the lines of record may be drawn on the metallic support, but it is obvious that other apparatuses may be substituted and I have only illustrated the one apparatus so as to enable persons versed in the art to practice my invention.

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

1. The method of reproducing sound waves in permanent records, which consists in causing a non-conducting material to be deposited on a conducting material in accordance with the vibrations of a diaphragm actuated by said sound waves, and causing

to be differentiated the height of the lines of record and the height of the remaining parts of the surface of the conducting material through the process of electro-deposition.

2. In the production of sound records, the method which consists in first recording the sound waves upon a suitable surface, and electro-plating upon the parts of the surface upon which no record has been made.

3. As a new article of manufacture, a phonographic record comprising a conducting support, lines of record thereon and a metallic deposit on all parts of the surface of said support with the exception of those parts which are covered by the lines of record.

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

ISIDOR KITSEE.

Witnesses:

EDITH R. STILLEY,
MARY C. SMITH.