UNITED STATES PATENT OFFICE.

ADEMOR N. PETIT, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE INTERNATIONAL PHONOGRAPH AND INDESTRUCTIBLE RECORD COMPANY, LIMITED, OF LIVERPOOL, ENGLAND.

METHOD OF PRODUCING SOUND-RECORDS IN CELLULOID.

SPECIFICATION forming part of Letters Patent No. 710,299, dated September 30, 1902.

Application filed July 30, 1900. Serial No. 25,301. (No model.)

To all whom it may concern:

Be it known that I, ADEMOR N. PETIT, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in the Methods of Producing Sound-Records in Celluloid, of which the following is a specification.

My invention relates to the treatment of surfaces of celluloid for the purpose of engraving, cutting, plowing, or otherwise marking or ornamenting the same for use in the arts and forming phonograph-records thereon, the object sought being to temporarily soften and make plastic the said surface, so that it can readily be cut into, the materials employed for treating the surface thereafter evaporating and leaving the surface of the material again hard and serviceable.

My invention relates particularly to the treatment of phonograph blank cylinders of celluloid for the production of sound-records by material capable of temporarily rendering such surface appreciably soft and plastic, but not sticky, so that the instruments employed for recording sound or reproducing phonograph-records can readily cut into the same for producing the desired impression.

In carrying out my invention I employ as a material for treating the surface of celluloid a solvent of the material and a fatty acid or similar material. In my Letters Patent dated December 4, 1900, No. 662,961, I have described and claimed these solvent materials. These materials are in a liquid state, and in the method of employing the same the surface of the celluloid is coated one or more times with the liquid material, which sinks into and is absorbed or taken up by the celluloid. These materials may be combined into one liquid or employed separately and one after the other or the celluloid may be dipped into the liquid material. The celluloid is then to be exposed to the air for a peroid, so that these elements may combine with the celluloid to render the surface thereof appreciably soft and plastic, but not sticky, and sufficiently soft to permit the instruments employed for engraving, cutting, plowing, or otherwise marking or ornamenting the said material to readily cut into the same for the purpose intended. The surface of the celluloid remains appreciably soft and plastic for a short poriod, said materials, however, gradually evaporating, so that eventually the surface of said celluloid returns almost to its normal condition and becomes almost as hard as originally. This condition is desirable with articles subject to much wear, because otherwise the surface would be readily dented and injured. Such a condition is especially desirable with phonograph-records, because thereby the life of the record is prolonged and the delicate indentations produced by the sound of the recorder are not readily rubbed down and obliterated.

As a solvent for celluloid I prefer to employ amyl acetate and as a fatty acid oleic acid, although said ingredients form no essential part of my present application. The surface of the celluloid after treatment with the said ingredients and in said manner may be kept comparatively soft and plastic for quite a time if the air is kept away. It is well known that the application to celluloid surfaces of a solvent material alone is liable to render the surface soft, gummy, and sticky and unfit for the purpose of cutting or engraving. The addition, however, to the solvent of a fatty acid or similar material, as hereinbefore stated, changes the character of the celluloid tissue of the surface, filling the cells, and, in fact, rearranging the molecular structure, so that the surface is simply plastic without being sticky or gummy, the surface being in such condition that the cutting instrument can cut clearly, readily, and without clogging. It makes no difference in the application of my invention whether the surface of celluloid is dull or highly polished, as the materials act equally as well upon either surface. The materials hereinbefore stated, as well as the method of employing same, act equally well on colored or plain celluloid.

I claim as my invention—

1. The method herein specified of forming phonograph-records of celluloid, consisting in coating or otherwise treating the surface of the celluloid cylinder with a liquid material absorbed or taken up by the celluloid and

so rendering the same temporarily soft and plastic, cutting the sound-record in the surface of the celluloid cylinder and allowing the said material to evaporate and the surface to dry and harden before use, substantially as set forth.

2. The method of producing sound-records in celluloid, which consists in first softening the celluloid, then permitting it to stand until it assumes a crisp consistency, and while in that condition cutting or engraving therein a record of sound, substantially as described.

Signed by me this 18th day of July, A. D. 1900.

ADEMOR N. PETIT.

Witnesses:

BERTHA M. ALLEN,

MARY J. G. CONNINGTON.