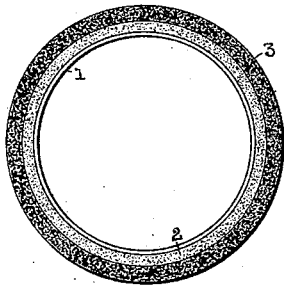


(No Model.)

T. A. EDISON.  
PHONOGRAM BLANK.

No. 437,429.

Patented Sept. 30, 1890.



Witnesses  
Norris A. Colantoni.  
Charles M. Catlin.

Inventor  
T. A. Edison.  
By his Attorneys  
Syert Seely.

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## PHONOGRAM-BLANK.

SPECIFICATION forming part of Letters Patent No. 437,429, dated September 30, 1890.

Original application filed February 17, 1890, Serial No. 340,789. Divided and this application filed May 9, 1890. Serial No. 351,119. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Phonogram-Blanks, (Case No. 857), of which the following is a specification.

My invention relates particularly to that class of phonogram-blanks which are designed for repeated use—that is, blanks—which when they have once been used have their outer surfaces shaved off and are then in condition to be used again. In this class of phonogram-blanks the recording substance is of considerable thickness.

The object of my invention is to simplify the construction of phonogram-blanks, to make them more durable, and especially to so construct them that they shall not crack by reason of expansion and contraction due to large changes in temperature, to which they are often subjected.

In the use of phonogram-blanks as heretofore constructed it has been found that there has been a great tendency to crack in cold weather, owing to contraction of the material composing the cylinder; but by the construction which is hereinafter described this tendency is remedied.

My invention consists in the completed phonogram-blank and in an improved backing or support for the recording-surface, as hereinafter described and claimed.

In the accompanying drawing, the figure is a cross-section through a phonogram-blank.

The blank consists of a central tube 1, of paper or other tough or fibrous sheet material, a layer of paraffine 2 or similar material thereon, and an outer layer 3 of the substance which constitutes the record-receiving surface. The object of the central tube is primarily to form a strong support for the outer cylinder, which will prevent breakage of the same in placing it on the phonogram cylinder or carrier or by accidental jarring to which it may be subjected.

The central tube may be made by any suitable method. It should be slightly tapering to allow its being placed on the phonogram-cylinder, as is well understood in the art.

This tube is then soaked in waterproofing material—such, for example, as paraffine—at a high heat to render it moisture-proof and is allowed to cool, after which it is slipped onto a cold mandrel and dipped into melted paraffine or some analogous material whose coefficient of expansion is about twice that of the material constituting the recording-surface and held long enough to gather a coating of considerable thickness. The mandrel and coating are then removed, and when the latter is sufficiently cool it is placed in a lathe and turned down to the desired size, a slight taper being given to the surface.

The method of making the outer or recording cylinder is as follows: A cold mandrel—that is, preferably about the temperature of the atmosphere—is covered with an oil—such as castor or olive oil—and is dipped in a bath of the wax-like or other material which is to constitute the outer cylinder and is held there for a short time. The mandrel being cold, the material chills thereon. When a sufficient thickness has formed on the mandrel—say two or three times the thickness of the coating on the paper tube—it is taken out and allowed to cool; but before it has cooled sufficiently to cause the coating to stick to the mandrel said coating is slipped off. This is easily done by reason of the lubrication of the mandrel. Before being removed the ends of the cylinder are trimmed down with a knife or otherwise to remove superfluous material. The recording-cylinder is then allowed to further cool and is turned down in a lathe to the proper size, and its outer surface is made a true cylinder.

The central and the recording cylinders are now ready to be united to form the completed phonogram-blank. The two cylinders are so proportioned that cylinder 3 will slip over cylinder 2 about two-thirds or three-fourths of its length when both are at a normal temperature. The cylinder 3 is heated, whereby it is expanded, and is then readily slipped over cylinder 2, and when it contracts on cooling is firmly held in place.

In a phonogram-blank constructed as above described the outer layer, which is quite fragile and liable to crack or break, is always provided with a firm support, and said sup-

port, or the outer layer thereof, which, as above stated, has a larger coefficient of expansion than the material comprising the record-receiving surface, readily expands and contracts to accommodate and still to form a support for the latter cylinder.

I do not claim in this application the method of making the phonogram-blank, since that forms the subject-matter of my application, Serial No. 340,789, filed February 17, 1890, of which this is a division, and I do not confine myself to making the article by the method above described.

Having thus described my invention, what I claim is—

1. A phonogram-blank composed of a tough central tube, a coating of material having a high coefficient of expansion, and an outer recording-cylinder having approximately twice the thickness of said coating, substantially as described.

2. A phonogram-blank composed of a central tube saturated with a waterproofing material and coated with a substance having a

large coefficient of expansion and an outer coating or recording cylinder the material of which has a smaller coefficient of expansion, substantially as described.

3. A phonogram-blank composed of a central backing or support coated with a substance having a large coefficient of expansion, an outer or recording cylinder of greater thickness than said coating and of a material which has a smaller coefficient of expansion, substantially as described.

4. A phonogram-blank composed of a paper tube, a layer of paraffine thereon, and an outer layer of suitable material having a smaller coefficient of expansion than paraffine, of approximately twice the thickness of the first layer, substantially as described.

This specification signed and witnessed this 29th day of April, 1890.

THOS. A. EDISON.

Witnesses:

A. O. TATE,  
THOMAS MAGUIRE.