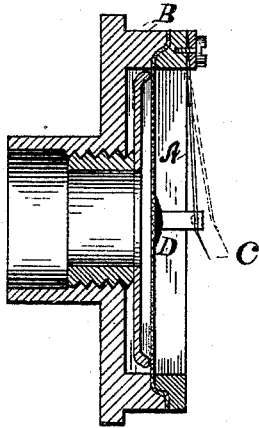


(No Model.)

T. A. EDISON.  
PHONOGRAPH REPRODUCER.

No. 488,190.

Patented Dec. 20, 1892.



Witnesses

*E. S. Rowland*

*William Byrd*

Inventor

*Thomas A. Edison*

By *his* Attorneys

*J. S. [Signature]*

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY, ASSIGNOR TO  
THE EDISON PHONOGRAPH COMPANY, OF NEW JERSEY.

## PHONOGRAPH-REPRODUCER.

SPECIFICATION forming part of Letters Patent No. 488,190, dated December 20, 1892.

Application filed June 7, 1888. Serial No. 276,383. (No model.)

*To all whom it may concern.*

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonograph-Reproducers, (Case No. 774,) of which the following is a specification.

The object I have in view is to improve the reproducer of my phonograph so that it will be more durable, will better maintain its adjustment under varying conditions of heat and moisture and will more effectively reproduce the sound vibrations. I accomplish these ends by an improved construction of the reproducing diaphragm and of the means for connecting the reproducing point therewith. The improved diaphragm I make of thin fabric such as silk preferably of bolting cloth. This is stretched in a frame and is then shellaced or varnished after which it is dried and is ready to be cut to the proper size for the reproducer diaphragm, or the fabric may be stretched in the frame of the reproducer and then shellaced or varnished. The result is a diaphragm which while exceedingly thin and flexible and well adapted to reproduce the sound vibrations, is not liable to stretch, is impervious to moisture and is exceedingly hard and resonant. The diaphragm, therefore, does not become warped by changes in the temperature and moisture of the atmosphere, and the reproducing point maintains the proper position relative to the phonogram blank.

For the reproducing point I use a wire of phosphor or aluminium bronze. It is secured to the frame at one side projects toward the center of the diaphragm and substantially parallel therewith, and is turned down to form the point. Instead of connecting this point with the diaphragm by an elastic strip or band of rubber I have found that a solid block of gum rubber is better for the purpose, since there is less loss in loudness of articulation due to the elasticity of the medium between the point and the diaphragm. The wire is sprung away from the diaphragm so that when the block of rubber is cemented both to the diaphragm and the spring wire the diaphragm will be under a slight tension.

In the accompanying drawing forming a

part hereof the figure represents a sectional view of a reproducer embodying my invention, the spring wire being shown in dotted lines in the position it assumes before being secured to the solid block of gum rubber.

A is the diaphragm which is made of a fabric such as silk bolting cloth which is stretched and then shellaced or varnished either before or after it is secured in the frame B of the reproducer. The reproducing point is formed of a metal wire C secured to the frame B at one side and extending toward the center of the diaphragm where its end is bent downwardly as shown. This wire is sprung away from the diaphragm as shown by the dotted lines. It is attached to the center of the diaphragm by a solid block D of gum rubber which is cemented both to the diaphragm and the wire, the wire being drawn in for the purpose so that the diaphragm will be normally held under tension.

What I claim is:

1. The combination, in a phonograph reproducer, of a diaphragm composed of a fabric filled with a hardening material, and a reproducing point operatively connected thereto, substantially as set forth.

2. The combination, in a phonograph reproducer, of a stretched fabric such as bolting cloth filled with shellac or varnish, and a reproducing point operatively connected to said diaphragm, substantially as set forth.

3. In a phonograph reproducer, the combination with the diaphragm and reproducing point, of a solid block of gum rubber connecting such diaphragm and point, substantially as set forth.

4. In a phonograph reproducer, the combination with the diaphragm and reproducing point having a spring tension away from such diaphragm, of a solid block of gum rubber connecting such diaphragm and point, substantially as set forth.

This specification signed and witnessed this 22d day of May, 1888.

THOS. A. EDISON.

Witnesses:

WILLIAM PELZER,  
A. W. KIDDLE.