(No Model.)

T. A. EDISON.

PHONOGRAPH.

No. 500,280. Patented June 27, 1893.

Fig. 1.

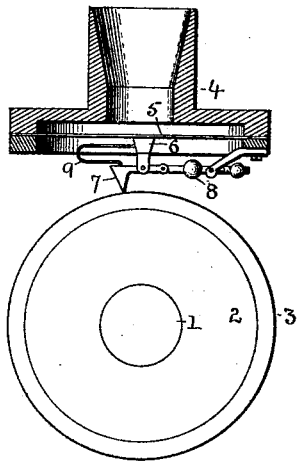


Fig. 2.

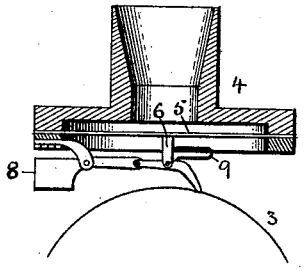
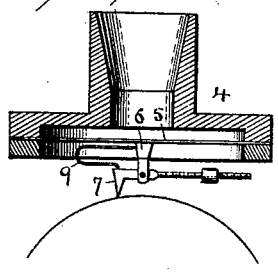


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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

PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 500,280, dated June 27, 1893.

Application filed November 21, 1890. Serial No. 372,224. (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 certain new and useful Improvement in Phonographs, (Case No. 881,) of which the following is a specification.

My invention relates to recording and reproducing devices of phonographs, and my object is to enable such devices to work satisfactorily notwithstanding irregularities in the surface of the phonogram blank. Sometimes in the manufacture of phonogram blanks, irregularities or eccentricities occur in the formation of the surface, and sometimes the blanks become warped after manufacture, and if provision is not made to prevent it, such irregularities will occasion movements of the recording or reproducing point and the diaphragm, which will interfere with the recording or reproducing of the sound.

The present invention consists in an apparatus adapted to obviate this defect.

In the accompanying drawings which illustrate the invention, Figure 1 is a cross sectional view of a recorder embodying my improvement. Fig. 2 is a like view of a slightly modified form; and Fig. 3 shows a similar recorder with the adjustable weight directly on the recorder arm.

1 is a phonograph shaft, 2 a phonograph cylinder, and 3 a phonogram blank.

4 is a ring or frame which supports the diaphragm 5. On the under side of said diaphragm is a block or post 6, to which is pivoted the lever 7, having at one end the operating point. The opposite end of said lever is connected to an extra weighted lever 8, pivotally supported as shown. The end of the lever distant from the lever 7 preferably slightly overbalances the end nearer said lever. This construction tends to throw the operating point against the phonogram blank. The pressure of the point against the phonogram blank may be still further modified if desired by a spring 9, co-operating with the weighted lever or pressing the recorder in an opposite direction, as desired. The weight or weights on lever 8 are preferably adjustable. In Fig. 1 the lever is shown with screw threads on which the weight at the right may be moved. In Fig. 3 a similar adjustable weight is supported directly on the recorder arm 7.

The extra lever, that is, the weighted lever 8, is not readily moved by the sound vibrations, which have to and fro movements of great rapidity and large number per second, so that said lever acts as though it were fixed, and all the energy due to the sound waves, or the sound record, is communicated directly from the diaphragm to the recording point, or from the reproducing point to the diaphragm, while the movements given to such points by eccentricities of the phonogram being comparatively long and slow, overcome the tendency to inaction of the retarding device, and so permit a movement independent of the diaphragm.

When the invention is used in connection with a reproducer the operating point will or may be of slightly different shape.

Having thus described my invention, what I claim is—

1. The combination of a phonograph diaphragm, a pivoted recorder or reproducer, and an extra pivoted lever weighted, substantially as described.

2. The combination of a phonograph diaphragm, a recorder or reproducer pivoted adjacent to the center of the diaphragm, an extra weighted lever constituting a retarding device, and a connection between said device and the recorder or reproducer, substantially as described.

3. The combination of a phonograph diaphragm, a recorder or reproducer pivoted at or near the center of the diaphragm, a counter-balanced retarding arm pivoted as described, and a hinge or pivotal connection between said arm and the recorder or reproducer, substantially as described.

4. The combination of a phonograph diaphragm, a recorder or reproducer pivoted at or near the center of the diaphragm and having means to force it slightly toward the phonogram blank, a weighted retarding arm pivoted and having an excess of weight on the side of the pivot opposite to the recorder

or reproducer, and a connection between said arm and the recorder or reproducer, substantially as described.

5. The combination of a pivoted phonograph recorder or reproducer, and an adjustable counter-balance, substantially as described.

This specification signed and witnessed this 27th day of October, 1890.

THOS. A. EDISON.

Witnesses:
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