

(No Model.)

T. A. EDISON.
PHONOGRAPH.

No. 484,585.

Patented Oct. 18, 1892.

FIG. 1.

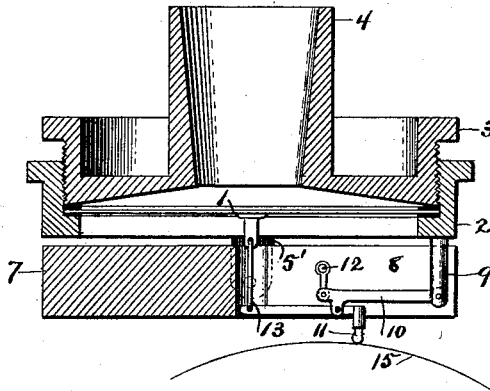
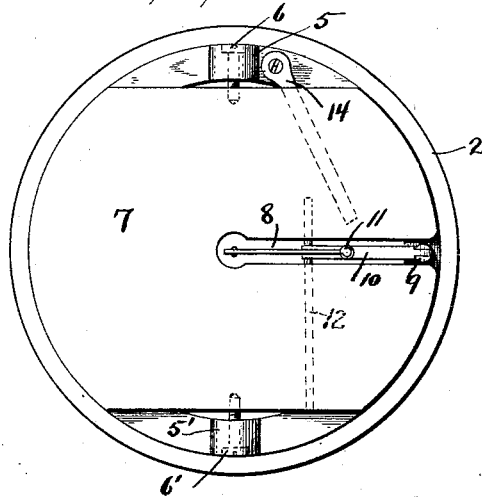


FIG. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 484,585, dated October 18, 1892.

Application filed July 30, 1890. Renewed March 30, 1892. Serial No. 427,014. (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. 865,) of which the following is a specification.

The present invention relates to a weight or retarding device on which the operating-point (recorder or reproducer) of a phonograph is carried, and to which it is connected by a pivotal or jointed connection in a well-known or any suitable manner.

The invention consists mainly in a support for the operating-point in the form of a balanced block or plate, and in certain features of construction and combinations in connection therewith, as hereinafter described and claimed.

The device is an improvement on the form heretofore employed, in which the weight supporting the operating-point was pivoted at one edge and was therefore not balanced. I have found that by having the weight balanced, and more especially by having it slightly overbalanced on the side at which the point is attached, increased efficiency of operation is attained.

In the accompanying drawings, which illustrate the invention, Figure 1 is a cross-section of a phonograph-reproducer embodying the improvement, and Fig. 2 is an inverted plan of the same.

The phonograph-diaphragm 1 is supported between the ring 2 and the adjustable ring 3 with elastic or yielding washers or cushions around its edge in the usual manner.

4 is a tubular extension, to which a hearing-tube may be connected. From the ring 2 extend two posts 5 5' at diametrically-opposite points. These posts are perforated for the reception of pivot-screws 6 6', between which is hung the counterbalanced weight or retarding device 7, which is a plate or block of metal or other suitable material. In the plate or block 7 is a slot 8, extending from one edge of the block to the center. From ring 2 a post 9 extends into or in line with the slot, and to this post is pivoted a lever 10, to which the operating-point of the phonograph (here shown as a reproducing-point) is

pivotally connected. A link connects lever 10 to the pin 12 and a link 13 connects the diaphragm to the operating-point.

As before indicated, it is preferable to give the retarding device a slight bias toward the phonogram-blank 15 on that side of the axis which carries the operating-point. In the instrument illustrated a spring 14 is supported on the lower edge of ring 2 and presses downwardly on plate 7 for the purpose of thus counterbalancing or overbalancing said plate. This may, however, be done in other ways, as by pivoting the plate at one side of its center of gravity or by adding a weight on one side of the pivot.

The operation of the apparatus above described is as follows: When the phonogram-blank is turned in the ordinary manner, the operating-point follows the phonogram-record and transmits the same to the diaphragm without appreciably moving weight 7, owing to the fact that it has sufficient mass to give it considerable inertia; but should there be any large irregularity in the surface of the phonogram-blank the weight will be tilted by means of the operating-point, pivot 12, and intermediate parts, thus avoiding false and disturbing movements of the diaphragm.

The advantage of pivoting the retarding device adjacent to its center of gravity instead of pivoting it at one edge, as heretofore, is that the weight of the plate or a greater part thereof is removed from the operating-point, while at the same time the inertia of the weight holds the supporting-pivot of the operating-point stationary during normal operation of the instrument and allows said pivoted and connected parts to move when necessary, as above described.

It will be evident that with this arrangement of the several elements described the instrument may be used readily in other positions than a horizontal with equally-good results.

The shape and location of the spring and several of the other elements may be varied to some extent without departing from the invention.

Having thus fully described the invention, what I claim is—

1. In a phonograph, the combination, with a diaphragm suitably supported, of an oper-

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ating-point connected therewith and supported on a weight pivoted adjacent to its center of gravity, substantially as described.

2. In a phonograph, the combination, with
5 a diaphragm suitably supported, of an operating-point connected therewith and supported on a plate or block pivoted adjacent to its center of gravity and means for overbalancing the plate, substantially as described.

10 3. The combination, in a phonograph, of a diaphragm, a reproducer connected therewith, and a counterbalanced plate or block on which said reproducer is supported, substantially as described.

15 4. In a phonograph, the combination, with a diaphragm, of an operating-point connected therewith, the weight pivoted adjacent to its center of gravity and slotted at one side of

the center, a pin carried by the weight, and a link connection between the pin and operating-point, substantially as described.

5. In a phonograph, the combination, with a diaphragm, of an operating-point connected therewith, the weight pivoted adjacent to its center of gravity and slotted at one side of
25 the center, a compensating spring, a pin carried by the weight, and a link connection between the pin and operating-point, substantially as described.

This specification signed and witnessed this
30 5th day of July, 1890.

THOMAS A. EDISON.

Witnesses:

E. COURAN,
W. PELZER.