T. A. EDISON.

PHONOGRAPH REPRODUCER.

APPLICATION FILED OCT. 28, 1909.

1,099,347. Patented June 9, 1914.

Fig. 1

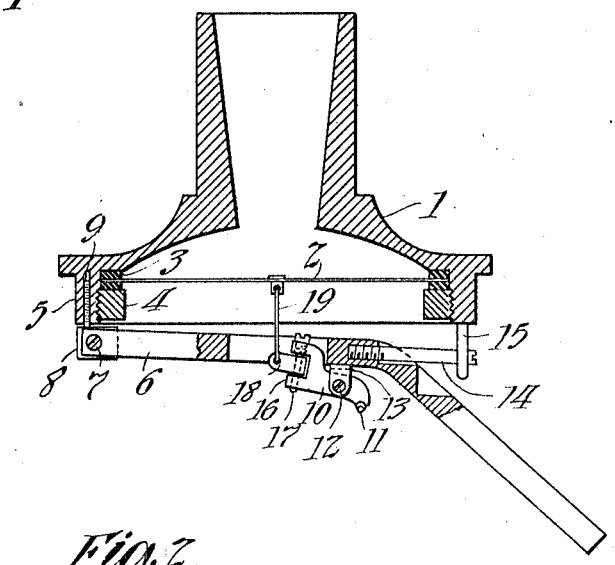
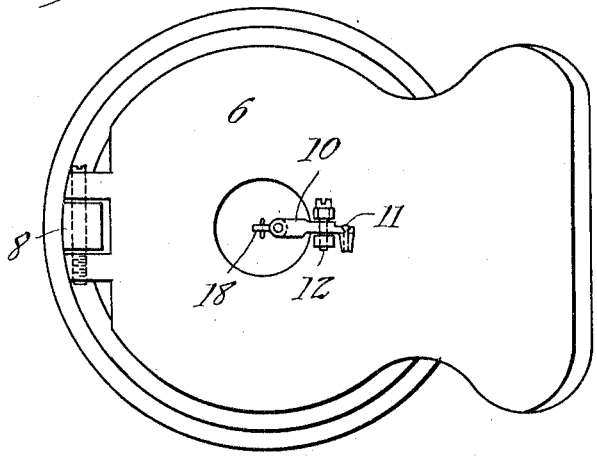


Fig. 2



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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, WEST ORANGE, NEW JERSEY, ASSIGNOR TO NEW JERSEY PATENT COMPANY, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PHONOGRAPH-REPRODUCER.

1,099,347. Specification of Letters Patent. Patented June 9, 1914.

Application filed October 28, 1909. Serial No. 525,062.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of Llewellyn Park, West Orange, Essex county, New Jersey, have made certain new and useful Improvements in Phonograph-Reproducers, of which the following is a description.

My invention relates to phonograph reproducers, and has for its object the provision of a mounting for the stylus lever and connections between the same and the diaphragm, whereby the stylus may have great freedom of movement in tracking the grooves of the record.

More particularly, the object of my invention is to provide a connection between the stylus lever and the diaphragm or other sound reproducing vibratory means, whereby the free movement of the stylus lever in a lateral direction while the stylus is tracking the record will not be impeded.

In the type of reproducer well known in the art, the tail of the stylus lever is connected to the center of the diaphragm by a link which is ordinarily a piece of wire which must have a certain amount of stiffness. When the stylus in tracking the record groove, is caused to move laterally by the undulations thereof, the stylus lever can only swing in a lateral direction by bending or twisting the connecting link. This imposes resistance to the movement of the stylus lever, and likewise, the link is apt to be twisted or the diaphragm put under undesirable stress. My improvement is designed to obviate this by providing a connection between the tail of the stylus lever and the link, whereby the link will be allowed to maintain its vertical position during lateral movement of the stylus lever, while, at the same time, the up and down movement of the lever resulting from the tracking of the stylus over the bottom of the sound groove is transmitted unimpaired to the diaphragm. This is accomplished by means of a member interposed between the stylus lever and the link, which member is pivoted to swing in a lateral plane during lateral movement of the stylus lever. Preferably, this member is pivoted at one end upon a pin which occupies a vertical plane through the tail of the stylus lever, the member being connected at its other end to the lower end of the link.

The stylus lever is pivotally mounted in a manner to allow considerable freedom of movement in a plane transverse to the record groove, whereby that facility of movement of the stylus lever which is particularly important in the case of the tracking of a record having 200 threads or a greater number of threads per inch is attained.

In order that my invention may be more clearly understood, attention is hereby directed to the accompanying drawings, illustrating a preferred form thereof, in which—

Figure 1 is a central vertical section through a reproducer equipped with my invention, certain parts being shown in side elevation; and Fig. 2 is a bottom plan view thereof.

Referring to the drawings, the usual sound box 1 is provided with a diaphragm 2, which is clamped between gaskets 3, the whole being held in place by a ring 4 which is threaded within flange 5 of sound box 1 in the usual manner. Floating weight 6 is pivoted at 7 to the block 8, which is supported from flange 5 by pin or screw 9, as is common. Stylus lever 10 carries stylus 11, the lever being pivoted on stud 12 which is supported in lugs 13 depending from floating weight 6. Lever 10 is mounted upon stud 12 with a somewhat loose fit, that is, in such a manner that the lever may rock through a slight arc laterally upon its pivot, or may move bodily a slight distance axially thereof. The lever 10 might be pivotally mounted in any other manner by which pivotal movement of the same in a plane transverse to the record groove is permitted. Pin 14 extending from the floating weight, is supported within stirrup 15 depending from flange 5 of the sound box to sustain the floating weight when the stylus is not in engagement with the sound record, as is common. Stylus lever 10 is preferably formed at its rear end with the upper and lower rearwardly projecting lugs 16. Screw 17 extends through these lugs, being threaded in one or both of the same and occupying a substantially vertical plane. The short link or member 18 extends longitudinally of lever 10 and is pivotally mounted at one end thereof upon the pin 17, member 18 being pro-

vided at its other end with a hole through which the lower end of link 19 is secured, link 19 being attached at its other or upper end to the center of diaphragm 2 in any usual manner. The parts are so placed and positioned that the link 19, when connected to member 18, lies substantially in the axis of the sound box. Projections 16 on lever 10 extend above and below member 18 so closely adjacent to the same that no motion is lost in transmitting the movement of stylus 11 in a vertical plane to diaphragm 2, while at the same time, member 18 may rock freely in a lateral direction upon pin 17 without binding. When, in the operation of reproducing, stylus 11 is diverted laterally in the sound groove, member 18 is swung about its pivot by the lateral movement of lever 10, link 19, accordingly, not being bent or put under stress.

Having now described my invention, what I claim and desire to protect by Letters Patent is as follows:

1. In a phonograph, the combination of a diaphragm, a stylus lever, a support for said lever comprising a pivot on which said lever is mounted for movement up and down in and transverse to the record groove, a stylus carried by said lever, a member connected to and extending longitudinally of said lever, said member being mounted for lateral movement relatively to said lever, and a link connecting said member to said diaphragm, substantially as described.

2. In a phonograph, the combination of a diaphragm, a stylus lever, a support for said lever comprising a pivot on which said lever is mounted for movement up and down in and transverse to the record groove, a stylus carried by said lever, a member connected to and extending longitudinally of said lever, said member being mounted for lateral pivotal movement relatively to said lever, and a link connecting said member to said diaphragm, substantially as described.

3. In a phonograph, the combination of a diaphragm, a floating weight, a stylus lever mounted on said floating weight for movement up and down in and transverse to the record groove, a stylus carried by said lever, a member connected to and extending longitudinally of said lever, said member being mounted for lateral movement relatively to said lever, and a link connecting said member to said diaphragm, substantially as described.

This specification signed and witnessed this 26th day of October 1909.

THOS. A. EDISON.

Witnesses:
DYER SMITH,
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