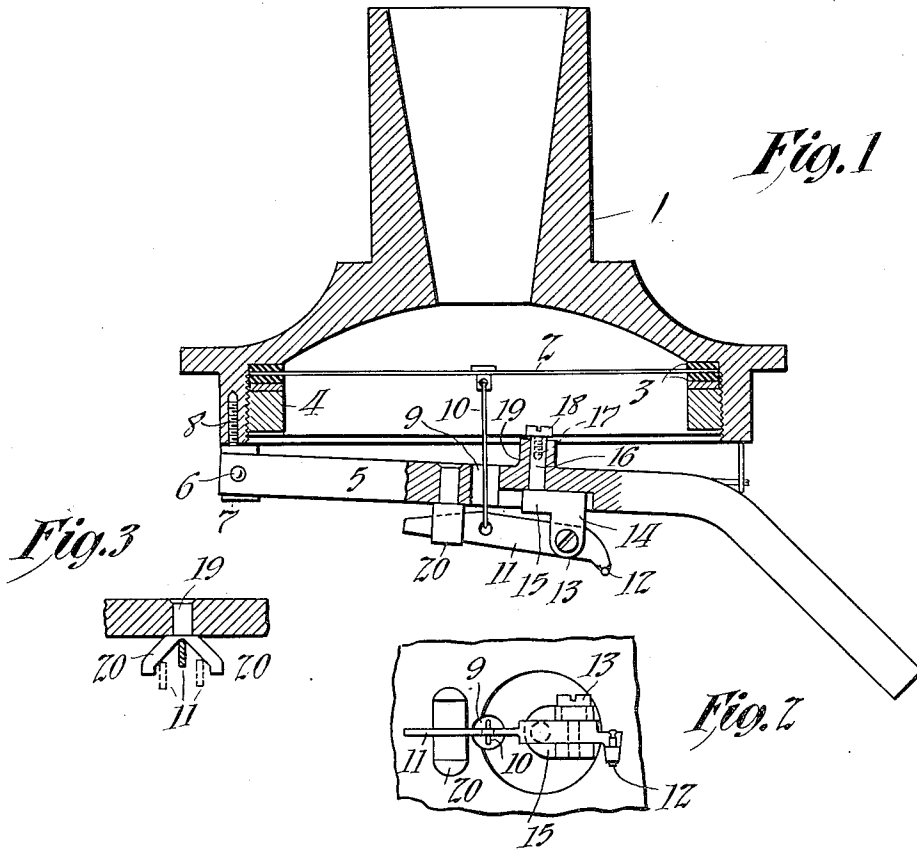


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 PHONOGRAPH REPRODUCER.  
 APPLICATION FILED MAR. 20, 1909.

1,049,216.

Patented Dec. 31, 1912.



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# UNITED STATES PATENT OFFICE.

FRANK L. DYER, OF MONTCLAIR, AND PETER WEBER, OF ORANGE, NEW JERSEY,  
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WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## PHONOGRAPH-REPRODUCER.

1,049,216.

Specification of Letters Patent.

Patented Dec. 31, 1912.

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*To all whom it may concern:*

Be it known that we, FRANK L. DYER, a citizen of the United States, and residing at Montclair, county of Essex, and State of New Jersey, and PETER WEBER, a citizen of the United States, and residing at Orange, county of Essex, and State of New Jersey, have invented a certain new and useful Improvement in Phonograph-Reproducers, of which the following is a description.

Our invention relates to phonograph reproducers, our object being more particularly to provide for the greater freedom of movement of the stylus lever, in order that a more faithful reproduction of the vibrations of the sound record may be made, and that undue wear upon the stylus and record may be avoided.

Our invention relates more particularly to a novel means of mounting the stylus lever whereby greater freedom of movement of the same transverse to the record groove may be allowed.

Another object of our invention is the provision of means for alining the stylus lever in a central position whenever the stylus is lifted from the record surface.

Other objects of our invention will appear in the description following and in the appended claims.

Attention is hereby called to the accompanying drawings, embodying a preferred form of our invention, and in which—

Figure 1 is a side elevation, partly in section, of a reproducer embodying our invention. Fig. 2 is a bottom view of the same showing the stylus lever and connections and the adjacent portion of the floating weight, and Fig. 3 is a detail view of the means for alining the stylus lever centrally.

The same reference numerals are used throughout the various views to denote corresponding parts.

Referring to the drawings, 1 represents a sound box body of the usual form. A diaphragm 2 is secured between gaskets 3 by a clamping ring 4 threaded in a depending flange of the body 1. The floating weight 5 is pivoted at 6 to the pivot block 7, which is pivotally secured to the body 1 by the usual screw 8. The floating weight 5 is provided with a vertical passageway 9 through which passes the link 10 which connects the center of the diaphragm 2 with

the stylus lever 11. The stylus lever 11 carries the stylus 12, and said lever 11 is pivoted on the horizontal screw or stud 13, which is mounted in depending lugs 14. These lugs 14 have formed therewith the arm 15, which extends back from the pivot 13 parallel or substantially so to the body of the floating weight 5 in the direction of the link 10. The stud 16 is rotatably mounted in the floating weight and is integral with or secured to the arm 15 at the end of the said arm nearest to the link 10. The stud 16 is mounted in a position approximately at right angles to the diaphragm 2, and is mounted to be easily rotatable in the weight 5 by any convenient means, as by the short screw 17 shown in the drawings, the head 18 of which screw rests upon the upper surface of the boss 19 of the floating weight.

It will thus be seen that the stylus lever 11 is so mounted as to have pivotal movement in a plane substantially at right angles to the diaphragm 2 about its pivot 13, and in a plane substantially parallel to the diaphragm 2 about its stud 16 as an axis. Furthermore, it will be seen that the axes 16 and 13 do not intersect. The arm 15 on the stud 16 constitutes, in effect, a crank arm, whereby the stylus 12 is allowed movement lateral to the record groove in an arc described about the stud 16 as a center. Of course, the greater the distance from the stud 16 to the stylus 12, the flatter will be the arc described by the stylus in movements transverse to the record groove, whereby a more truly universal movement of the stylus is attained. It will be observed that this desirable length of radius of the stylus in its transverse movements might be attained by eliminating crank arm 15 and placing pivot 13 directly below stud 16, so that the axes 16 and 13 would be intersecting, as has been proposed, but in this case the desirable relation between the lengths of the lever arms from the pivot 13 to the stylus 12 and to the point of connection of the link 10 with the stylus, whereby the vertical movement of the stylus in tracking the record grooves is amplified, would be seriously interfered with.

In Fig. 3 we have shown a detail view of the means for alining the stylus lever. This consists of the vertical member 19 secured in the floating weight 5, which member is pro-

vided on the under side of the floating weight with depending branches 20 in the form of an inverted V. These branches 20, 20 embrace the tail of the stylus lever 11.

5 When the stylus 12 is in contact with the record surface, the tail of the lever 11 will be forced downwardly some distance from the under surface of the floating weight 5 so that the lever may move laterally through a

10 considerable arc before the tail of the lever encounters the side of one of the stops 20, as is shown in dotted lines in Fig. 3. When, however, the reproducer is lifted so that the stylus is removed from the record surface

15 for any purpose, the tail of the lever is raised, the inclined inner surface of the arm 20 with which the tail of the lever is in contact guiding the same to a central position so that when the reproducer is again lowered

20 to place the stylus in contact with the record groove, the lever will be in proper alignment parallel to said groove.

Having now described our invention, what we claim and desire to protect by Letters

25 Patent is as follows:

1. In a phonograph reproducer, the combination with a floating weight, of a stylus lever, a stud on which said lever is pivotally supported, a stud rotatably mounted in said

30 weight substantially at right angles to said first named stud, a crank member on the second stud supporting the first, a member connected to said weight and having an inverted V-shaped recess embracing the tail of said

35 lever for centering the same, substantially as described.

2. In a phonograph reproducer, the combination with a floating weight, of a stylus lever, a stud on which said lever is pivotally supported, a stud rotatably mounted in said

40 weight, substantially at right angles to said first named stud, said second stud having formed therewith a crank member extending at right angles to said stud and depending

45 ears at the end of said crank member, said ears supporting said first named stud, a member connected with said weight and having an inverted V-shaped recess embracing the tail of said lever for centering the same,

50 substantially as described.

3. In a phonograph reproducer, the combination with a floating weight of a stylus lever and a stylus carried thereby, a diaphragm, means supporting said lever from

55 said weight about which said lever is free to rock in directions substantially parallel to and at right angles to said diaphragm, a connection from said diaphragm to said lever, and a member connected with said

60 weight and having an inverted V-shaped recess embracing the tail of said lever for centering the same, substantially as described.

FRANK L. DYER.  
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