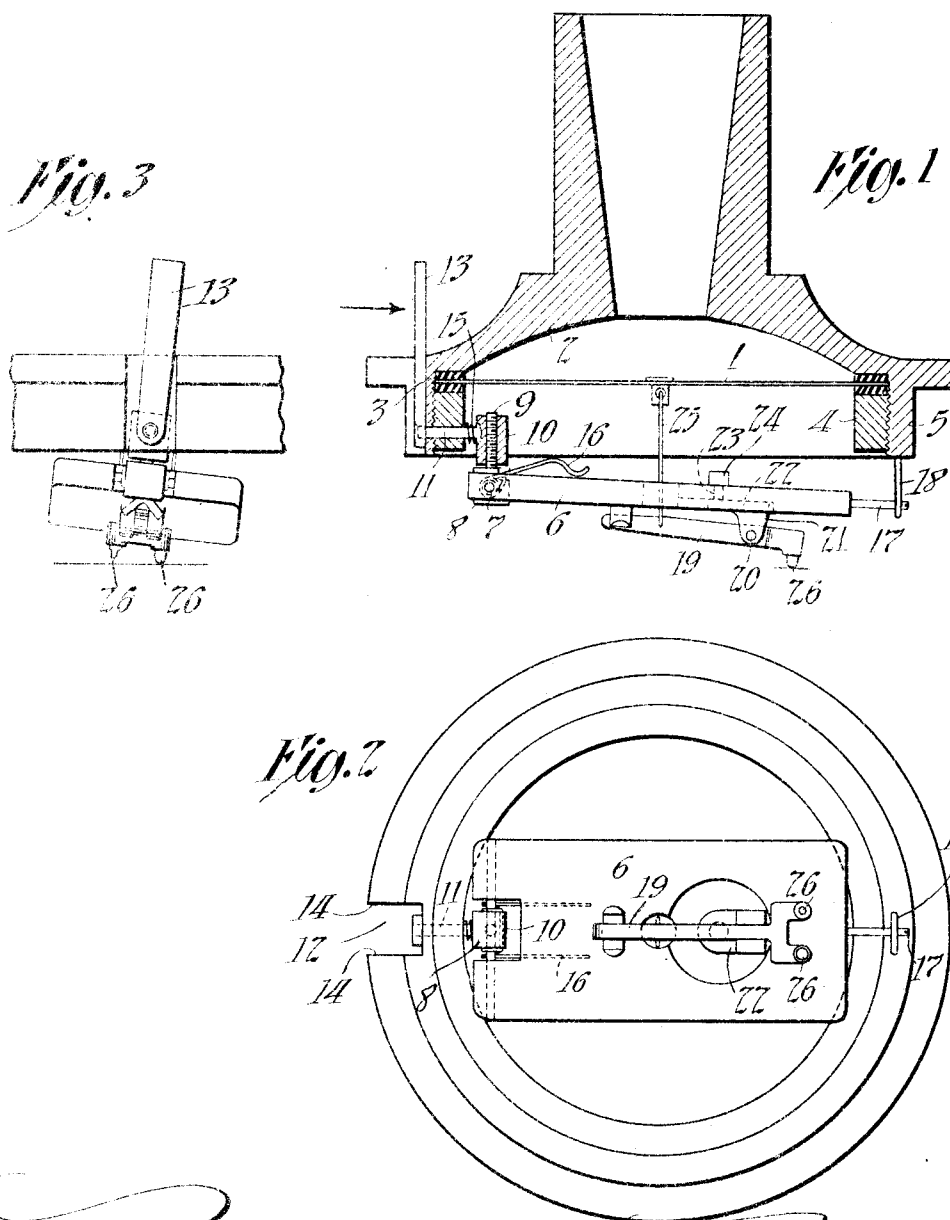


F. L. DYER.
 PHONOGRAPH REPRODUCER.
 APPLICATION FILED MAY 22, 1900.

1,127,873.

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Witnesses:
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PHONOGRAPH-REPRODUCER.

1,127,873.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK L. DYER, a citizen of the United States, and a resident of Montclair, in the county of Essex and State of New Jersey, have made a certain new and useful Invention in Phonograph-Reprouducers, of which the following is a description.

My invention relates to phonograph reproducers, and my object is to provide an effective and novel means for mounting a pair of reproducing styli connected to the diaphragm of the reproducer in such a manner that either may be simply and effectively adjusted into position to cooperate with a record groove of a distinctive character, so that, for example, a stylus adapted to cooperate with a record having 100 threads per inch and a stylus adapted to cooperate with a record having 200 threads per inch may be mounted in the same reproducer.

In carrying out my invention, I preferably mount the styli on one end of a pivotally supported stylus lever, the styli being disposed on opposite sides of the center line of said lever, and provide means for swinging said lever through an arc about an axis approximately parallel to the center line of said lever for the purpose of lowering either stylus into operative position, while raising the other out of such position.

Other objects of my invention reside in the construction of parts and combinations of elements as described in the following specification and particularly pointed out in the appended claims.

Attention is hereby directed to the accompanying drawings forming part of this specification, in which the same reference characters are used throughout to denote corresponding parts, and in which—

Figure 1 represents a vertical section through a reproducer embodying my invention, certain parts thereof being shown in elevation; Fig. 2 is a bottom plan view of the same, and Fig. 3 is a fragmentary end view of the reproducer shown in Fig. 1 looking in the direction of the arrow shown in connection therewith.

Referring to the drawings, the diaphragm 1 is horizontally mounted in the reproducer body or sound box 2, being held between rings 3 and secured in place by the clamping ring 4, which is threaded within depending

annular flange 5 of the reproducer body in the well known manner. The weight or supporting member 6 is pivotally supported by the horizontal pin 7 which is mounted in vertical block 8 which is formed integrally with or is secured to the substantially vertical pin 9 which is threaded within or is otherwise rotatably secured within the member 10. The member 10 has formed integrally therewith or secured thereto the horizontal pin 11 which is pivotally mounted in the clamping ring 4 and the flange 5 of the reproducer. The member 10 is thus secured inside the clamping ring 4, the outer end of pin 11 extending into a cutaway portion 12 of the depending flange 5 of the reproducer body. The lever or manipulative member 13 is secured to this outer end of pin 11 and extends up through recess 12 to form a handle by which the pin 11 may be rotated through a limited arc, the walls 14 of the recess 12 forming stopping means for limiting such motion. Any suitable means may be provided for retaining the pin 11 and connected parts in any adjusted position. I have shown the spiral spring 15 encircling the pin 11 and confined between the bore of the clamping ring 4 and the adjacent surface of member 10 for frictionally holding the pin in its adjusted position. The spring 16 has end coiled about the pivot pin 7 of supporting member 6, the other end of spring 16 bearing upon the upper surface of member 6 to force the same downwardly. The pin 17 is provided extending from the surface of supporting member 6 at a point diametrically opposite from the pivotal mounting of said member, said pin cooperating with a stirrup 18 depending from the lower surface of flange 5 of the reproducer body to limit the downward and lateral movement of supporting member 6 in the well known manner. Stylus arm or lever 19 is pivotally supported on horizontal pin 20, which is held by lugs or ears 21. These ears 21 may be formed integral with the lower surface of weight 6, or they may be integral with a member supported by said weight 6 and having rotative movement relative thereto to afford greater lateral movement to the stylus or styli carried by the stylus lever 19. I have shown such a mounting in the drawings, in which lugs 21 are integral with a member having a portion 22 mounted

in a recess in the lower surface of supporting member 6 and extending backwardly approximately in a horizontal direction from said ears 21, the pin 23 rising from the end of said offset portion 22 and having a head 24 resting upon the upper surface of weight 6 or supported rotatably in said member 6 in any other convenient manner to form a substantially vertical pivot in the said member. The lever 19 is connected by the link 25 to the center of diaphragm 1 in the well known manner. The stylus lever 19 is formed at its end opposite from that to which the link 25 is connected with a forked portion, the prongs of the fork extending on opposite sides of the center line of lever 19, and each carrying a stylus 26. One of these styli is adapted to co-act with a record of a certain character as for example, a record having 100 threads per inch, while the other stylus is adapted to co-act with a record of a different character, as for example, one having 200 threads per inch. These styli are so formed and are so positioned as to properly co-act with their appropriate records when stylus lever 19 is swung through a certain predetermined angle about the pin 11 as an axis.

In Fig. 3 one stylus 26 is shown in operative position for tracking a record having 100 threads per inch, while the other stylus 26, which is adapted to track a 200 thread record, is shown elevated out of operative position.

It is to be understood that while I have described the preferred form of my invention, I am not necessarily limited to the exact construction of parts disclosed, but may modify the same within the terms of the appended claims.

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

1. In a device of the class described, the combination of a stylus arm or lever, a plurality of styli carried by said arm or lever, and supporting means for said arm or lever, said supporting means being movable about an axis extending longitudinally of said arm or lever to move one stylus into operative position and the other therefrom and being also free to move with either stylus in operative position to permit the stylus to follow irregularities in the record surface, substantially as described.

2. In a phonograph reproducer, the combination with a sound box and a diaphragm mounted therein, of a stylus lever, means connecting said lever and diaphragm, a plurality of styli carried by said lever, and means on which said lever is pivotally mounted, said last named means being movable about an axis substantially parallel to the longitudinal axis of the stylus lever to place one stylus in operative position and

to remove the other therefrom, substantially as described.

3. In a phonograph reproducer, the combination with a sound box and a diaphragm mounted therein, of a stylus lever, means connecting said lever and diaphragm, two styli carried by said lever on opposite sides of the longitudinal center line of the lever, a floating weight for supporting said lever and means for adjusting the position of said weight with respect to said sound box to place either one of said styli in operative position and remove the other therefrom, substantially as described.

4. In a phonograph reproducer, the combination with means responsive to sound vibrations, of a stylus lever, a link connecting said means and lever, two styli carried at one end of said lever, means for supporting said lever with either of said styli in operative position, and means for swinging said supporting means and said lever in a vertical arc transverse to said lever to place either one of said styli at will into operative position and remove the other therefrom, substantially as described.

5. In a phonograph reproducer, the combination with means responsive to sound vibrations, of a stylus lever, a link connecting said means and lever, two styli carried at one end of said lever, a support to which said lever is pivoted, a member to which said support is pivoted to allow vertical movement of said support, and means pivotally supporting said member to allow adjustment of said support in a vertical lateral arc, substantially as described.

6. In a phonograph reproducer, the combination with a weight, a stylus lever supported thereby and a stylus carried by said lever, of a horizontal pivot for said weight, a member in which said pivot is mounted, a horizontal pivot for said member at right angles to said first mentioned pivot, and a body supporting said pivot for adjusting said stylus into and out of operative position, substantially as described.

7. In a phonograph reproducer, the combination with a weight, a stylus lever supported thereby and a stylus carried by said lever, of a horizontal pivot for said weight, a member in which said pivot is mounted, a horizontal pivot for said member at right angles to said first mentioned pivot, and a body supporting said pivot for adjusting said stylus into and out of operative position, and means for holding said last named pivot in adjusted position, substantially as described.

8. In a phonograph reproducer, the combination with a weight, a stylus lever supported thereby and two styli carried at the end of said lever at opposite sides of the longitudinal center line thereof, of means for swinging said weight about an axis ap-

proximately parallel to said center line to adjust either stylus into operative position, substantially as described.

9. In a phonograph reproducer, the combination with a weight, a stylus lever supported thereby and two styli carried at the end of said lever at opposite sides of the center line thereof, of means for swinging said weight about an axis parallel to said center line to adjust either stylus into operative position, and means for holding said weight in adjusted position, substantially as described.

10. In a device of the class described, the combination of a stylus arm or lever, a plurality of styli carried by said arm or lever, and supporting means for said arm or lever, said supporting means being movable about an axis substantially parallel to the longitudinal axis of said arm or lever to place one stylus in operative position and to remove the other therefrom, substantially as described.

11. In a phonograph reproducer, the combination with vibratory means, of a stylus lever, connections between said means and one extremity of said lever, supporting means to which said lever is pivoted, and a mounting in which said supporting means is revoluble about an axis extending longitudinally of said lever and substantially parallel to the normal position of said vibratory means, substantially as described.

12. In a phonograph reproducer, in combination, a stylus lever, a plurality of styli projecting therefrom, a member in which said lever is pivoted, supporting means in which said member is rotatably mounted, the axis of rotation of said member extending longitudinally of said lever, and means for holding said lever in position for either of said styli to engage the record, substantially as described.

13. In a phonograph reproducer, in combination, a stylus lever, a plurality of styli projecting therefrom, a member in which said lever is pivoted, and supporting means in which said member is rotatably mounted, the axis of rotation of said member extending longitudinally of said lever, substantially as described.

14. In a phonograph reproducer, the combination with vibratory means and a floating weight, of a stylus lever pivotally connected to said weight, two styli projecting from different portions of said lever, connections between said vibratory means and said lever, and means for rotating the pivot of said lever about an axis substantially parallel

to the normal position of said vibratory means to rotate said lever and place either stylus in operative position.

15. In a phonograph reproducer, the combination with vibratory means and a floating weight, of a stylus lever pivotally connected to said weight, a stylus projecting from each of two surfaces of said lever, connections between said vibratory means and said lever, and means for rotating the pivot of said lever about an axis substantially parallel to the normal position of said vibratory means to rotate said lever and place either stylus in operative position.

16. In a device of the class described, in combination, a stylus lever, styli projecting therefrom, a member by which said lever is carried, and means by which said member is supported for rotation about an axis extending longitudinally of said lever, said supporting means being provided with stops adapted to limit said member in its rotation, substantially as described.

17. In a device of the class described, in combination, a stylus lever, styli projecting therefrom, a member by which said lever is carried, means by which said member is supported for rotation about an axis extending longitudinally of said lever, said supporting means being provided with stops adapted to limit said member in its rotation, and means for holding said member in adjusted position, substantially as described.

18. In a device of the class described, the combination with vibratory means, of a stylus lever connected to said vibratory means, a plurality of styli projecting therefrom, means for rotating said lever about an axis extending longitudinally thereof to place either stylus in operative position, and means for resisting movement of said rotating means away from the position corresponding with the engagement of either of said styli with the record, substantially as described.

19. In a device of the class described, in combination, a stylus arm or lever, a plurality of styli projecting therefrom, a member by which said arm or lever is carried, and means by which said member is mounted for rotation about an axis extending longitudinally of said lever, substantially as described.

This specification signed and witnessed this 20th day of May 1909.

FRANK L. DYER.

Witnesses:

DYER SMITH,

JOHN M. CANFIELD.