T. A. EDISON.

PHONOGRAPH REPRODUCER.

APPLICATION FILED MAR. 18, 1908.

996,625. Patented July 4, 1911.

Fig. 1

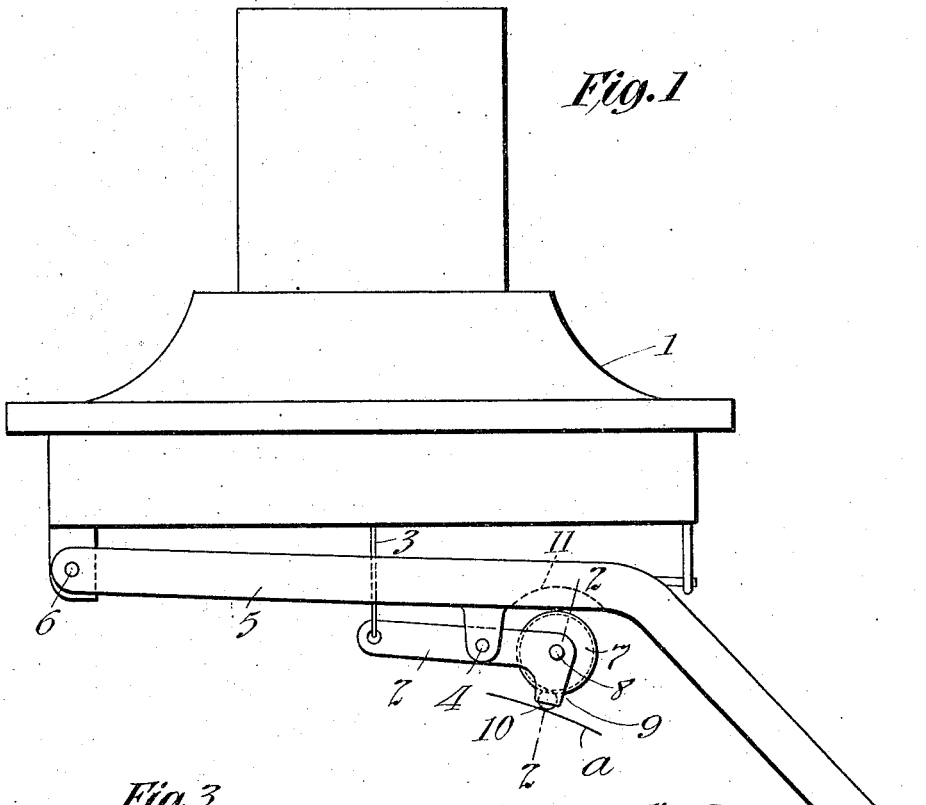



Fig. 3

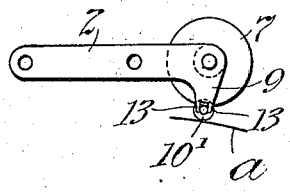



Fig. 2

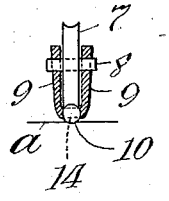
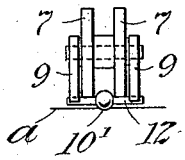



Fig. 4




Witnesses:
Frank D. Lewis
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Inventor:
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Atty.

# UNITED STATES PATENT OFFICE

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

## PHONOGRAPH-REPRODUCER.

996,625. Specification of Letters Patent. Patented July 4, 1911.

Application filed March 18, 1908. Serial No. 421,888.

*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, Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Phonograph-Reproducers, of which the following is a description.

Phonograph reproducers as now generally used, comprise a stylus having a curved surface adapted to be applied to the record groove with a suitable degree of pressure, and as the record surface travels said stylus slides along the surface of the groove and moves toward and away from the body of the record.

My invention has for its object the elimination of the friction which is caused by the sliding of the stylus over the record surface by providing a stylus in the form of a roller or ball, and rotatably supporting the same, so that it presses upon and rolls along the record surface.

My invention has for its further object the provision of a support for the said stylus, which enables it to rotate with a minimum amount of friction.

Referring to the accompanying drawing, Figure 1 is a side elevation of a phonograph reproducer constructed in accordance with my invention; Fig. 2 is a detail section on line 2—2 of Fig. 1; Fig. 3 is a side elevation of a stylus lever carrying a modified form of rotary stylus, and Fig. 4 is an end view of the same.

The reproducer shown comprises the sound box body 1, which carries a diaphragm connected to the stylus lever 2 by the link 3, said lever being pivoted at 4 to the floating weight 5, which is pivotally supported at 6, said parts being of well-known form and construction. At the end of the lever 2, opposite the link 3, is mounted a roller 7, which turns on the pin 8 and is provided with a grooved periphery, as shown in Fig. 2. The lever 2 is recessed to receive said roller 7 and provided with a pair of downwardly extending arms 9, connected by an integral web 14, formed with an opening through which the lower part of the stylus 10 extends, in order to engage the record surface *a*, said stylus being supported by the walls of said opening so that it cannot drop out of the opening when unsupported by the record surface. The stylus 10 is preferably of spherical form and may be of sapphire, metal or other suitable material, the curvature of the stylus being the same as that of the peripherical groove of the roller 7. The stylus is loose with respect to the lever 2, so that when the stylus rests upon the record surface it is pressed into frictional engagement with the periphery of the roller 7, and the latter therefore forms a rotary abutment or support for the stylus, whereby friction of the same against rotation is reduced to a minimum. The floating weight 5 receives its support from the record surface through the stylus 10, roller 7 and pin 8. The lower surface of the weight 5 is recessed as shown at 11, to permit a vertical movement of the roller 7.

In the device of Figs. 3 and 4, the stylus 10′ is in the form of a ball having turnnions 12, the ends of which are retained by the fingers 13 formed in the ends of the arms 9 of the lever 2, and said ball rests upon the record surface *a*, and is pressed against the periphery of the roller 7 in the same manner as the stylus of Figs. 1 and 2. The rotary stylus and rotary abutment may, if desired, be suitably mounted for operating upon a record in the form of a disk having a laterally undulating record groove.

Having now described my invention, what I claim is:

1. In a phonograph reproducer, the combination of the floating weight, stylus lever pivoted thereto, a grooved roller carried by said lever, and a spherical stylus engaging the periphery of said roller, substantially as set forth.

2. In a phonograph reproducer, the combination of the floating weight, stylus lever, roller 7 and spherical stylus 10, the periphery of said roller being grooved, and said

stylus being held in engagement therewith by the pressure of the stylus upon the record surface, due to the floating weight, substantially as set forth.

3. In a phonograph reproducer, the combination of the floating weight, stylus lever pivoted thereto, a grooved roller carried by said lever, and a rotatable curved stylus engaging the periphery of said roller, substantially as set forth.

This specification signed and witnessed this 13th day of March 1908.

THOS. A. EDISON.

Witnesses:
FRANK L. DYER,
ANNA R. KLEHM.



Correction in Letters Patent No. 996,625.

It is hereby certified that in Letters Patent No. 996,625, granted July 4, 1911 upon the application of Thomas A. Edison, of Llewellyn Park, Orange, New Jersey, for an improvement in "Phonograph-Reproducers," an error appears in the printed specification requiring correction as follows: Page 1, line 74, the word "turnnions" should read *trunnions;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of August, A. D., 1911.

[SEAL.]

E. B. MOORE,
*Commissioner of Patents.*