

No. 873,013.

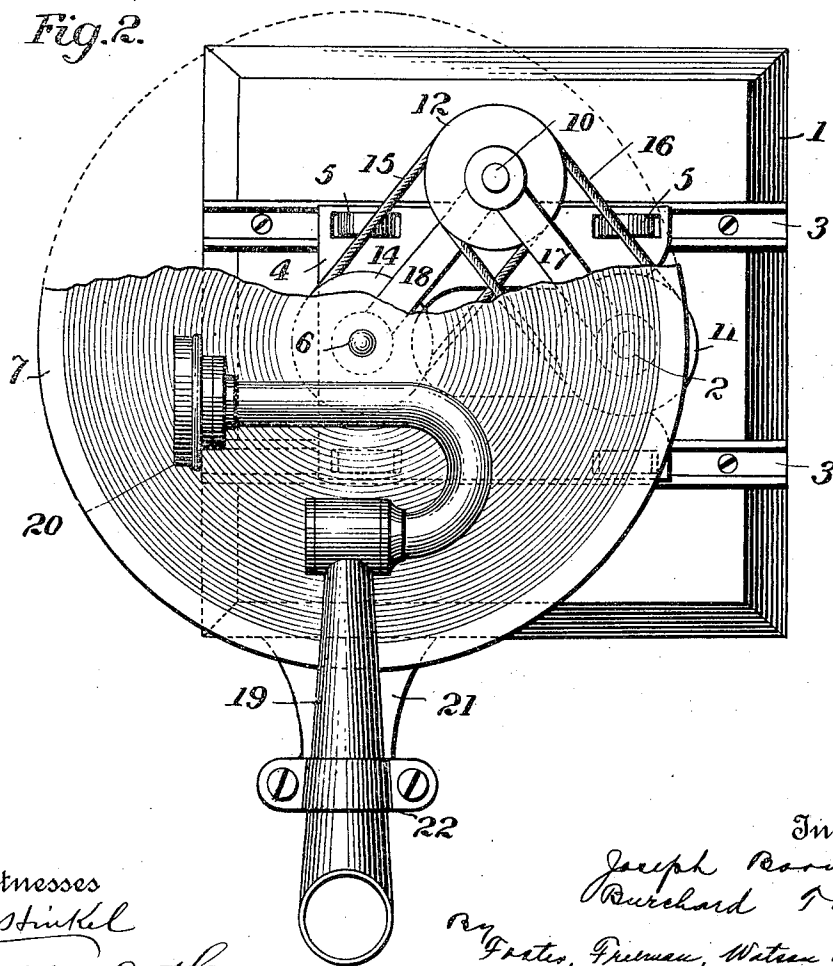
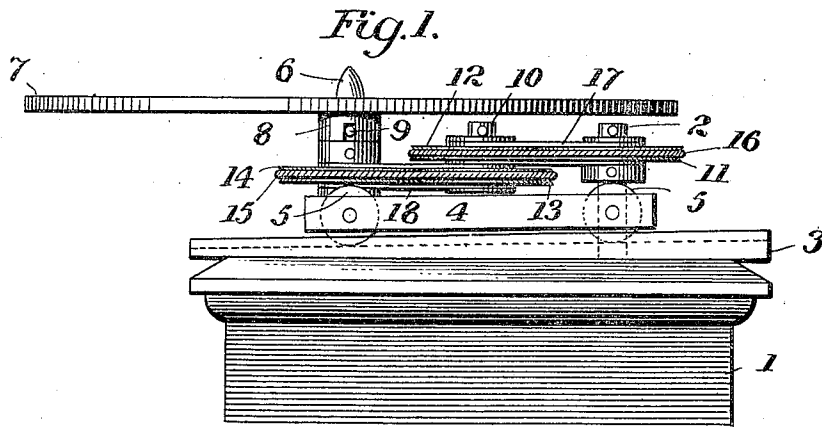
PATENTED DEC. 10, 1907.

J. BORNAND & B. THOENS.

PHONOGRAPH.

APPLICATION FILED JUNE 1, 1907.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

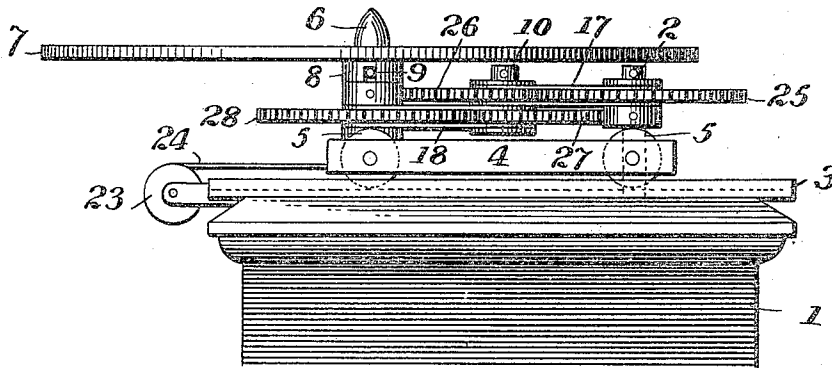
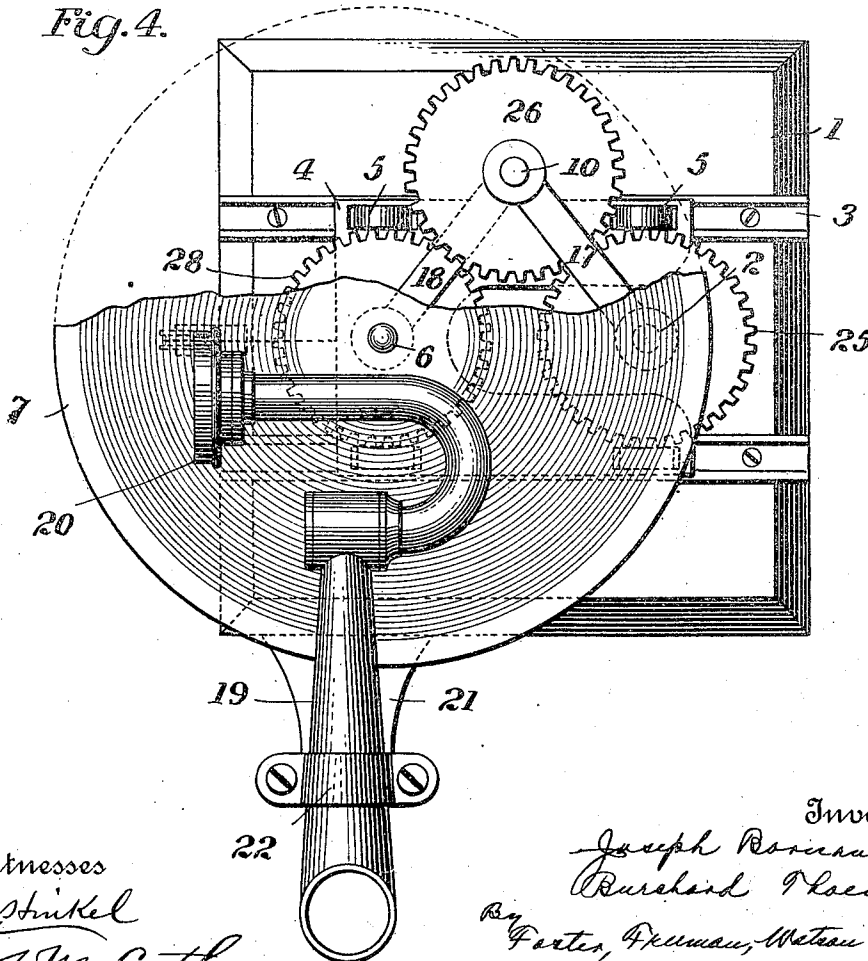


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH BORNAND, OF PELHAM, AND BURCHARD THOENS, OF NEW YORK, N. Y.

PHONOGRAPH.

No. 873,013.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed June 1, 1907. Serial No. 376,804.

To all whom it may concern:

Be it known that we, JOSEPH BORNAND, a citizen of the Republic of Switzerland, residing at Pelham, in the county of Westchester, State of New York, and BURCHARD THOENS, a subject of the Emperor of Germany, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Phonographs, of which the following is a specification.

The invention relates to phonographs or talking machines in which the sound tube is stationary and the record is movable.

It resides in the means for mounting the sound tube and for mounting and operating the record support, so that the record will be automatically moved by the engagement of the stylus of the sound reproducer with the spiral groove in the record. The record support is so mounted and connected with a fixed source of power that it may be driven without any interference with its motion in a straight line beneath the stylus of the reproducer.

In the accompanying drawings—Figure 1 is a side elevation showing the device; Fig. 2 is a plan of the same device; Fig. 3 is an elevation of a modified form of the device; and Fig. 4 is a plan view of this modification.

Referring particularly to Figs. 1 and 2, 1 represents a box or casing in which there may be placed any ordinary form of motor. A spindle lettered 2 extends through the top of the casing near one side and is adapted to be driven by the motor within the casing. Two parallel track-ways 3 are placed on top of the casing at opposite sides of the spindle 2. These track-ways are inclined to the horizontal and serve as supports and guides for the rollers 5 of a movable carriage or frame 4. The frame 4 has a cut away portion which permits it to straddle the spindle 2. In the frame 4 is mounted the spindle 6 which carries at its upper end the circular flat disk 7 which serves as a support for the record. This plate 7 has on its lower side a projection 8 which fits over the pin 9, passing through the spindle 6, and thus the plate is locked to the spindle and made to rotate therewith. A third spindle 10 is pivotally mounted upon two arms lettered 17 extending from the spindle 2, and also upon two pivoted arms 18 extending from the spindle 6. On the spindle 2 and between the arms

17 is mounted a sheave 11, and opposite this sheave on the spindle 10 is mounted the sheave 12. Between the arms 18 a sheave 13 is mounted on the spindle 10, and a corresponding sheave 14 is mounted on the spindle 6. These sheaves are connected by belts 15 and 16, so that any rotation of the spindle 2 is imparted to the spindle 6 and to the record support 7. The sound tube 19 and reproducer 20 are fixedly attached to the casing 1 by means of the bracket 21 and clamp 22.

In the modification shown in Figs. 3 and 4, instead of using the inclined track-ways we have provided a spring 23 connected by a band 24 to the carriage 4. This spring, like the inclined ways, tends to move the carriage in one direction. In this modification furthermore we have substituted for the sheaves and connecting belts the meshing and gear wheels 25, 26, 27 and 28. It will be understood that other forms of connecting gearing or operating means might be employed instead of the particular forms described, without departing from the main plan of my invention.

In operation the flexible connection between the spindle 6 and spindle 2 which includes the pivoted arm 17 and 18 permits the carriage to move freely towards or away from the spindle 2 without interfering with the rotation of the record support. The inclined track-ways 3 in Figs. 1 and 2 and the spring 23 in Figs. 3 and 4 are so adjusted and proportioned as to almost, but not quite, overcome the friction and inertia of the carriage and operating parts, so that very little force is required to move it in one direction. When it is desired to use the device to reproduce a record, the record is placed on the support 12 and the stylus of the reproducer 20 is placed in the outer turn of the spiral groove in the record and power is applied to the spindle 2, so as to rotate the record. The stylus will follow the spiral groove and being stationary will, by contact with that groove, move the record and its supporting parts, including the carriage, transversely beneath it.

We have found that the character of the sound produced is much improved by having the sound tube fixed and stationary instead of having movable parts. We believe that the movable parts interfere with the

proper transmission of the sound and we desire to claim broadly this feature of a fixed and immovable sound tube.

What we claim is:

- 5 1. The combination of a relatively fixed reproducer, a rotatable record shiftable by said reproducer in a given direction, and in a straight line relatively to said reproducer, and means independent of the reproducer
10 tending to shift said record in the direction in which it is moved by the reproducer.
2. The combination with a stationary sound tube, of a carriage free to move laterally in a straight line, beneath the end of
15 said tube, a rotatable record support mounted on said carriage, stationary driving means, and flexible connections between said driving means and record support for rotating said support without interfering with its free
20 lateral motion.
3. The combination with a stationary sound tube, of a rotatable record support mounted upon a carriage free to move laterally in a straight line in either direction
25 and means independent of the stylus whereby the friction and inertia of the carriage when it is moved in one direction is almost overcome.
4. The combination with a stationary
30 sound tube, of a rotatable record mounted upon a laterally movable carriage, rollers supporting said carriage and inclined track-ways upon which said rollers move.
5. The combination with a stationary
35 sound tube, of a rotatable record mounted upon a laterally movable carriage, rollers supporting said carriage, and track-ways for the rollers so inclined to the horizontal as to almost overcome the frictional resist-
40 ance of the carriage to motion in one direction.

6. In a device of the class described, the combination with a driving spindle of a rotatable record support, the spindle and support being movable relative to each other, a movable spindle connected by link arms to the driving spindle and the spindle of the record support, and connections between the spindles whereby the record support is rotated from the driving spindle. 45 50

7. In a device of the class described, the combination with a driving spindle of a rotatable record support, the spindle and support being movable relative to each other, sheaves carried by said spindle and the
55 spindle of the record support, a movable spindle connected to said spindles by pivoted link arms upon each side of said sheaves, two sheaves rigidly connected to said movable spindle between the link arms, and flexible
60 belt connections between said sheaves whereby the record support is operated from said driving spindle.

8. The combination with a stationary sound tube of a rotatable record support, 65 of a laterally movable carriage on which the record support is mounted, a stationary driving spindle, link arms connecting the driving spindle and the spindle of the record support with a movable spindle, and con- 70 nections between the spindles whereby the record support is driven in its rotation from the driving spindle.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH BORNAND.
BURCHARD THOENS.

Witnesses:

R. W. LEVY,
L. F. FROELICH.