

B. MORTON.
GRAPHOPHONE.

APPLICATION FILED DEC. 16, 1907.

948,959.

Patented Feb. 8, 1910.

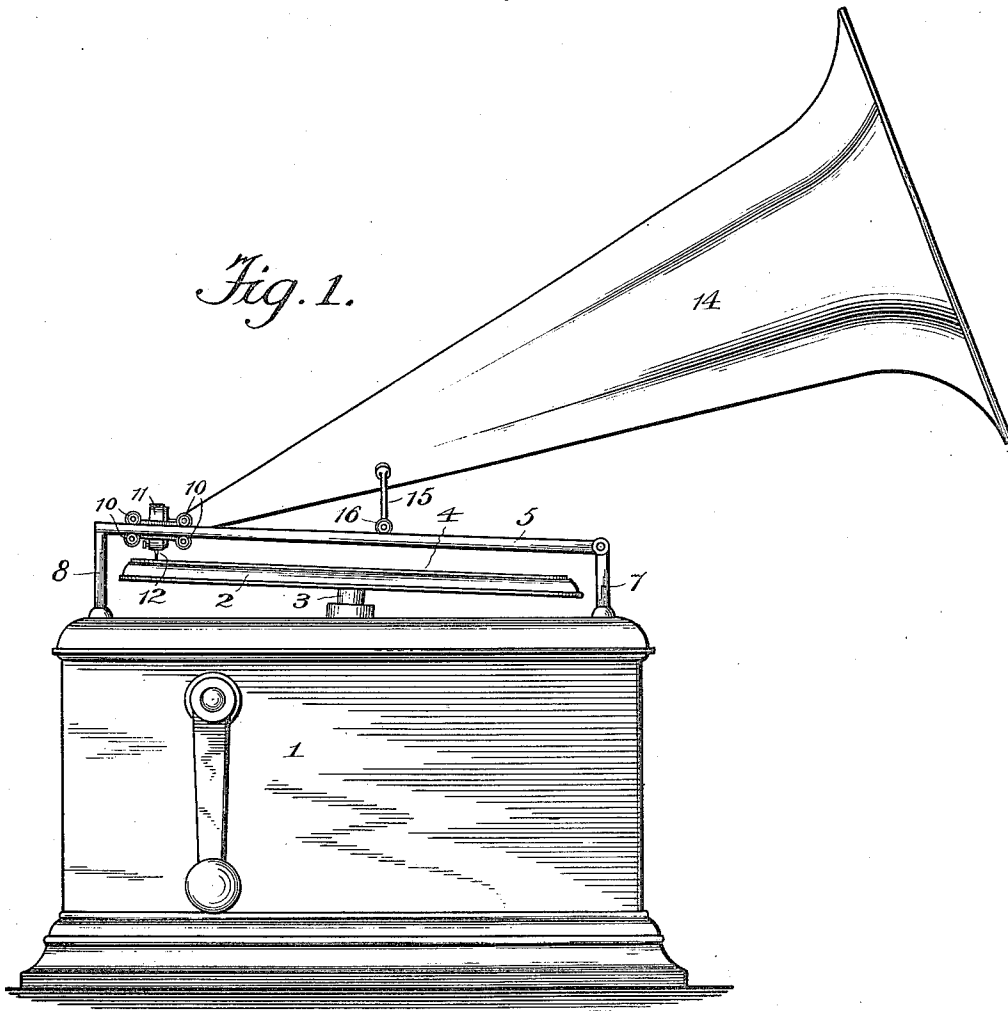
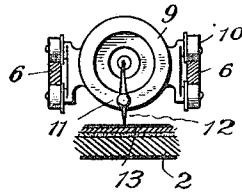


Fig. 2.



WITNESSES:

Calvin S. Milam,
Barrie A. Shree

INVENTOR:

Baxter Morton,

BY

Wm. W. Milam
ATTORNEYS.

UNITED STATES PATENT OFFICE.

BAXTER MORTON, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO HAWTHORNE & SHEBLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GRAPHOPHONE.

948,959.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed December 16, 1907. Serial No. 406,640.

To all whom it may concern:

Be it known that I, BAXTER MORTON, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Graphophones, of which the following is a specification.

This invention relates to graphophones and has for its object the provision of a graphophone in which the reproducer is not impelled across the record tablet by means of the record groove or by mechanical feed mechanism such as a screw or rack.

In the accompanying drawings forming part of this application I have illustrated the invention as embodied in a graphophone of the disk type, the stylus of the reproducer being yieldingly propelled across the record in a plane parallel to the surface of the disk with the stylus tracking in the record groove and restrained against too rapid movement thereby.

In the drawings: Figure 1 is a view in side elevation of a complete graphophone embodying the present invention. Fig. 2 is a view partly in elevation and partly in section of the reproducer, the reproducer carriage, and a portion of the record tablet and support therefor.

Referring to the drawings by the reference characters, which designate corresponding parts in the several views, 1 designates the casing for the motor, which may be of any preferred type, and 2 designates the support for the record tablet. This support, which in the present instance is in the form of a disk, is mounted upon an axis 3 turning in suitable bearings and arranged at a very slight angle to the vertical. Arranged above the supporting disk 2 for the record tablet 4 is a guideway or track 5 for the reproducer. This guideway consists preferably of two rails 6—6 which are very slightly inclined to the horizontal and are pivoted at one end to a standard 7, the rails resting at the other end upon another standard 8, to which they may be secured in any preferred manner. The reproducer is mounted upon a small carriage 9 provided with small flanged rollers or wheels 10, preferably eight in number and arranged both above and below the rails 6 of the guideway or track. The reproducer proper, which is designated 11, is of any ordinary construction and is pro-

vided as usual with a needle or point 12 for engagement with the sound groove of the record tablet 13. A horn 14 is shown as suitably connected with the reproducer for intensifying the sound, and this horn is preferably supported in part by a bracket 15 having flanged rollers 16 resting upon the rails 6 of the guideway or track 5.

In the operation of the apparatus constructed as shown and described, the record disk is mounted on the support in the usual manner and rotation is imparted to the disk by means of the motor in the casing 1. The reproducer is brought into position at the beginning of the sound groove by raising the guideway or track 5 and sliding the carriage along the guideway or track until the proper point is reached. The needle or tracer 12 is then brought into engagement with the sound groove by lowering the guideway or track 5, and the reproduction of sound will begin when the motor is set in operation. As the reproducer carriage tends to move along the guideway or track 5 from a high point to a lower one, no mechanical means is necessary to impart movement to the reproducer; but the rate of travel of the reproducer along the guideway or track is determined by the sound groove of the record tablet, which restrains such travel through the engagement of the needle or tracer 12 therewith. As the inclination of the guideway or track is very slight, the component of the force of gravity tending to produce movement of the reproducer carriage along the guideway or track is not sufficient to cause the needle or tracer 12 to press very forcibly against the side of the sound groove on the record tablet, and therefore pressure of the needle or tracer against the side of the sound groove will not interfere materially with the freedom of vibration of the reproducer diaphragm. As the record disk rotates on the support 2 the reproducer carriage will gravitate toward the lower end of the guideway or track as fast as the rotation of the record disk will permit, the advance of the reproducer carriage with each rotation of the disk being equal to the distance between adjacent whirls of the spiral sound groove on the disk.

While I have shown the record disk lying in an inclined plane and as mounted on a

support having an inclined axis, I do not limit myself to this construction, as it will be obvious that the reproducer carriage may travel upon an inclined guideway or be so supported that its path will lie in an inclined plane without its being necessary to have the axis of rotation of the record disk correspondingly inclined. On the contrary, the axis of the support for the record disk may be vertical and the disk itself may lie in a horizontal plane, if the reproducer needle or tracer is so mounted that it can follow the groove in which the reproducer needle is carried by a pivoted arm so that the carriage need not remain at a fixed distance from the record disk. Furthermore, any other support which will cause the reproducer carriage or reproducer itself to travel in an inclined plane under the influence of gravity may be employed as a support for the reproducer or reproducer carriage in lieu of the guideway or track 5. The guideway or track has been described and illustrated as a simple and satisfactory support which has some advantages over the swinging arm pivoted on a laterally projecting bracket mounted on the motor casing which is commonly employed with graphophones of the disk type.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a talking machine, the combination of a sound record, movable reproducing mechanism, and inclined supporting and guiding devices for supporting said mechanism and guiding it in its movement in coaction with the sound-record, the inclination of said devices causing said mechanism to travel across the record and in an inclined plane under the influence of gravity, with the stylus of the reproducing mechanism tracking in and restrained by the record-groove throughout the several convolutions thereof, substantially as set forth.

2. In a talking machine, the combination of a rotatable turn-table for supporting a disk record lying in a plane slightly inclined to the horizontal, means for rotating the turntable on an axis perpendicular to said plane, reproducing mechanism, and inclined supporting and guiding devices for supporting said mechanism and guiding it in its movement in coaction with the record, the

inclination of said devices causing said mechanism to move in a plane parallel with the face of the turntable with the stylus thereof tracking in and restrained by the record groove throughout the several convolutions thereof, substantially as set forth.

3. In a talking machine, the combination of a motor-box adapted to rest upon the support with the base thereof horizontally disposed, a rotatable turn-table for supporting a disk record mounted on said box and lying in a plane slightly inclined to the horizontal, means for rotating the turn-table on an axis perpendicular to said plane, a disk sound record on said turntable and movable reproducing mechanism mounted in position for the stylus thereof to coact with the record-groove in the disk on the turn-table, said reproducing mechanism being adapted to be actuated by gravity to move across the record during the reproduction of the record, substantially as set forth.

4. In a talking machine, the combination of a motor-box adapted to rest upon a support with the base of said box horizontally disposed, a rotary shaft mounted in said box, the axis of which shaft extends at an angle to the plane of said base, a rotatable turntable for supporting a disk record mounted on said shaft and lying in a plane inclined to the horizontal, a disk sound-record on the turntable, and reproducing mechanism mounted adjacent to the turntable for movement under the influence of gravity in an inclined plane so that the stylus thereof may coact with the record-groove in the disk on the turntable throughout the several convolutions of said groove, substantially as set forth.

5. In a mounting for sound reproducing machines having a record and a sound reproducing head, means for feeding the sound head transversely across the path of the record by gravity comprising an inclined rail inclined to the base of said machine and means traveling upon said rail for carrying said sound reproducing head.

This specification signed and witnessed this 12th day of December, 1907.

BAXTER MORTON.

Witnesses:

OTTO MUNK,
D. J. EDMONDS.