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PATENTED JULY 2, 1907.

W. RABE & C. KAMRATH.
TALKING MACHINE.

APPLICATION FILED APR. 5, 1906.

Fig. 1.

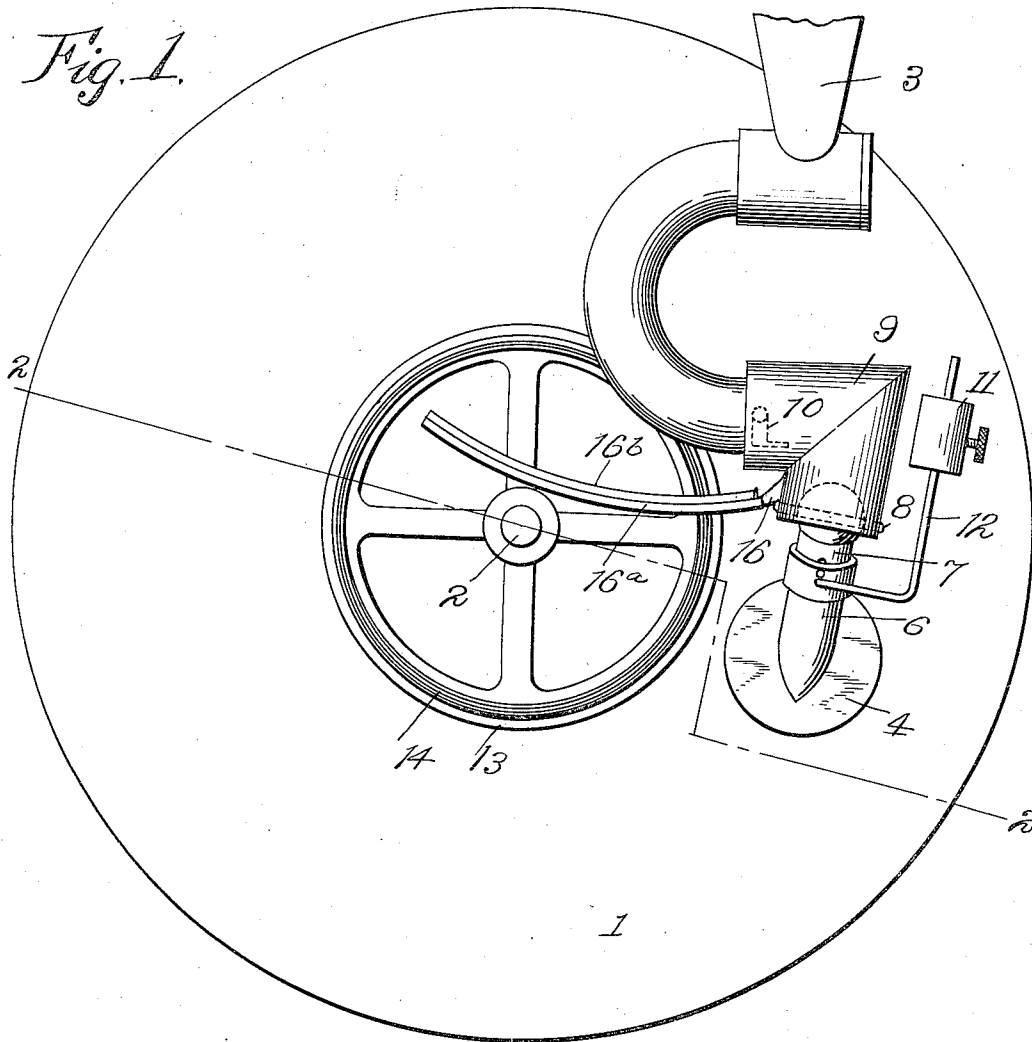
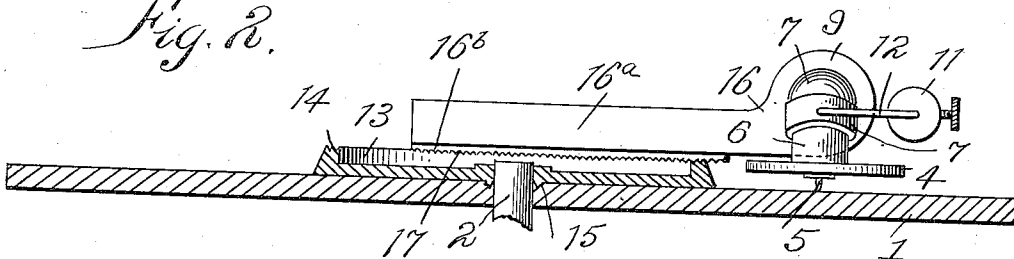


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILHELM RABE AND CARL KAMRATH, OF NEW YORK, N. Y., ASSIGNORS TO LANDAY BROTHERS, OF NEW YORK, N. Y., A COPARTNERSHIP.

TALKING-MACHINE.

No. 859,180.

Specification of Letters Patent.

Patented July 2, 1907.

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To all whom it may concern:

Be it known that we, WILHELM RABE and CARL KAMRATH, both subjects of the Emperor of Germany, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

Our invention relates particularly to machines of the flat record type and consists in means for adapting such machines to the making and reproducing of "home" records, and to that end they are here shown, and are preferably constructed so as to be applicable to the ordinary machines now in use, and intended for use only in reproducing commercially made records.

Our object has been to produce a mechanism simple and cheap in construction, convenient and certain to operate, of great amplitude of movement so as to be applicable to records of various sizes, accurately adjustable to the work to be done and smooth and noiseless in action.

In the accompanying drawings, the mechanism is shown arranged for the production of records of the graphophone type, wherein the sound waves are recorded and reproduced by vertical movements of the stylus, but we do not intend to limit the scope of the invention to that use.

In said drawings, Figure 1 is a plan view of our improved mechanism with so much of the parts of an ordinary talking machine as is necessary to an understanding of the same. Fig. 2 is a vertical, sectional elevation thereof taken on the planes indicated by the dotted lines 2-2, Fig. 1.

At 1, we have shown a disk preferably made of such material as is suitable for the production of "home" records, such as wax or wax composition of sufficient softness.

2 is the centering stud of the turn table of any usual or preferred construction of talking machine and 3 the horn connecting arm of any usual or preferred construction and supported in any preferred way.

4 is a sound box, two of which are provided with this instrument; in one of which the stylus 5 is of form and mounting adapting it for recording and in the other of form and mounting adapting it for reproducing and the two sound boxes are also modified in construction otherwise in customary manner adapting them to their individual functions. The sound box has a neck 6, whereby it may be slipped upon a joint member 7, the connection being such as to prevent horizontal play in the recording sound box, and permit slight horizontal play in the reproducing sound box. By horizontal is meant play in a plane parallel to the face of the record. The coupling member 7 is attached as by the trunnion pin 8 to an angle tube 9

in such manner as to permit vertical play of the sound box and the angle tube 9 is removably connected to the horn arm 3 by a bayonet joint as shown at 10.

To regulate the pressure of the stylus upon the record, we provide a weight 11 adjustable upon a wire or rod 12, which is fastened to the neck of the sound box or to the coupling member 7. The weight may be moved toward or away from the fulcrum or pivotal point of the sound box upon the angle tube 9 so as to make the impression of the stylus as light or as heavy as desired.

13 is a wheel or ring, preferably of metal, and having the crown spiral 14 and located upon the record 1 concentric with its centering stud 2. It may be removably attached as by the slight points or projections 15 engaging the soft surface of the record or may be otherwise fastened as preferred.

Engaging the crown spiral 14 is an arm 16 which is fastened to the angle tube 9 and is preferably bent in the arc of a circle whose center is the pivotal point of the horn or arm 3. Preferably also, the arm 16 is made of a backing strip 16^a of metal and a facing strip 16^b of vulcanized fiber or other sufficiently hard and non-metallic material, the backing affording the necessary strength to the arm and the facing insuring the noiseless engagement of the arm with the crown spiral. On the under edge of the arm and preferably only on the facing portion 16^b thereof, which portion projects below the metal backing for that purpose, are a series of grooves or teeth 17 preferably curved to conform to the curves of the spiral 14, so as to accurately engage the same.

It will be seen that when the round disk 1 of suitable material is placed in the revolving table of a talking machine, the crown spiraled wheel and the recording mechanism put in position, and the table started in rotation, the recording stylus will travel around the disk in a spiral path caused by the engagement of the successive teeth of arm 16 with the crown spiral and that a record may be produced in a well-known manner in the spiral groove so formed which may be reproduced merely on substitution of a reproducing sound box for the recording sound box. The arm 16 and crown spiral guide the sound box positively during both operations and so preventing the accidental dislodgment of the stylus from the record groove.

It is apparent that the amplitude of movement of the arm 16 is considerable and that records of various sizes can be made and that by slightly canting the arm 16 so that when at the extreme inner position, said arm will slide above the far side of the crown spiral, still greater amplitude of movement may be provided for.

The connection provided by the arm 16 and crown spiral is so positive that the mechanism will operate properly even if the record and machine be not exactly level.

Having thus described the invention what we claim as new and desire to secure by Letters Patent is:—

1. In a talking machine, the combination of a sound conveying horn-connection mounted to vibrate in a plane parallel with the record-tablet, a sound box suitably connected to said horn-connection, a guiding arm for the sound box curved in an arc concentric with the pivot of the horn and having a series of grooves or projections on its under face, a record-tablet and an annular crown spiral carried by the record-tablet and engaged by the grooves or projections on the under face of the guiding arm, substantially as described.
2. In a talking machine, the combination of a flat record-tablet, an annular crown-spiral having projections to engage with the record-tablet to which it is applied, a sound-conveying horn-connection mounted to vibrate in a plane parallel with the record-tablet, a sound box suitably connected with the said sound conveying horn-connection and an arc shaped arm mechanically connected to the sound box and having a series of grooves or projections on its under face engaging the crown-spiral and imparting to the sound-box radial movement relatively to the record-tablet by the rotation of the latter, substantially as described.

3. In a talking machine, the combination of a flat horizontal record-tablet rotating on a vertical axis, a sound conveying horn-connection mounted to vibrate on a vertical axis, a sound-box connected with said horn-connection, an annular crown-spiral carried by the record-tablet and a guiding arm mounted on the sound-conveyer and having a series of grooves or projections on its under face engaging with the annular crown-spiral so as to impart movement to the sound-box radial to the record-tablet, by the rotation of the latter, substantially as described.

4. In a talking machine, the combination of a rotary record-tablet, an annular crown-spiral mounted thereon, a sound-conveyer mounted to vibrate in a plane parallel with the record-tablet, a sound-box connected with said sound conveyer and a guiding arm mounted on the sound-conveyer having a metallic back and a non-metallic face with a series of projections engaging with the crown-spiral so as to impart to the sound-box movement radial to the record-tablet, by the rotation of the latter, substantially as described.

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