

J. A. RABBITT.
TALKING MACHINE.
APPLICATION FILED FEB. 8, 1910.

993,793.

Patented May 30, 1911.

Fig. 1,

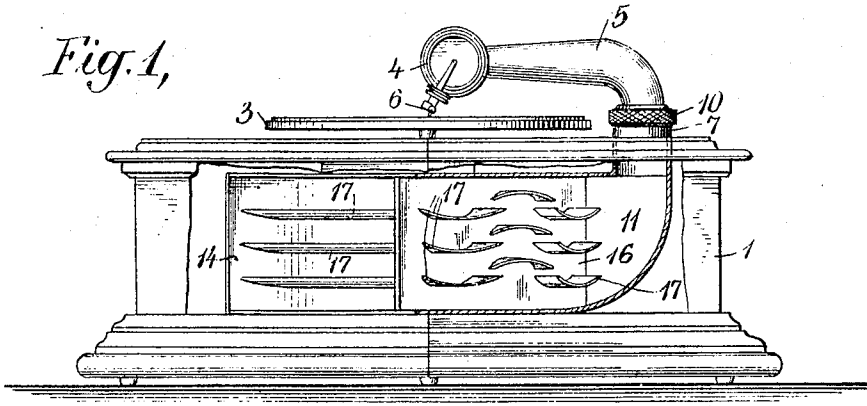


Fig. 2,

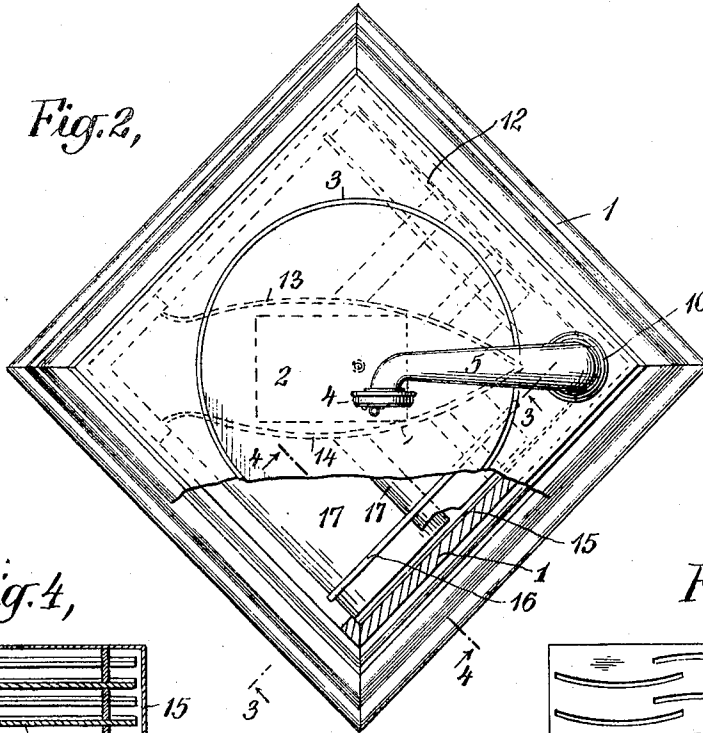


Fig. 4,

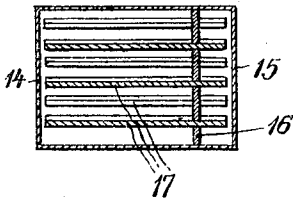


Fig. 3,

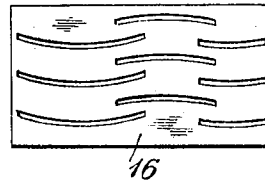
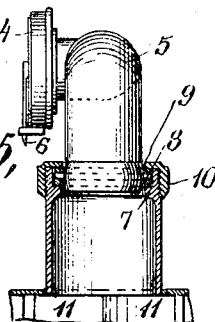


Fig. 5,



WITNESSES:

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TALKING-MACHINE.

993,793.

Specification of Letters Patent. Patented May 30, 1911.

Application filed February 2, 1910. Serial No. 542,711.

To all whom it may concern:

Be it known that I, JAMES A. RABBITT, a citizen of the United States, residing at Yokohama, in the Empire of Japan, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

This invention relates to talking machines and has reference more particularly to the construction of the sound-conveying and amplifying devices for such machines.

The invention is directed to the provision of a talking machine of an improved construction, whereby a more compact structure and one which is of attractive appearance is provided; and such that an increased volume and a sweeter tone of the reproduced sounds are secured.

In accordance with the invention, the reproduced sounds are carried from the sound-box through a passageway which passes through the box or casing employed as a support and an inclosure for the motor; within the casing the sound-conveying passageway is divided into two diverging parts which pass one on either side of the motor, thus forming a double resonance chamber. Each of these parts is of progressively increasing cross-sectional area, so that the sounds are amplified while passing therethrough. In this way a tapering sound-conveyer is provided which is of sufficient size to effect a substantial amplification of the sound, the employment of a bulky tapering horn extending above the machine is avoided, and ample space for the motor is provided without undue enlargement of the casing of the machine.

The invention further involves the provision of certain resonance devices in the sound-conveying passage which serve to augment the volume of the reproduced sounds and sweeten the tone, so that a more faithful reproduction of the recorded sounds is obtained.

In the preferred embodiment of the invention, a support is employed mounted in the sound-conveying passage and carrying resonators which may be in the form of thin leaves, either metallic or non-metallic, increasing in width toward the end of the passage; the ends of these leaves or resonators are free of the walls of the passage and

they vibrate in harmony with the sound waves thereby amplifying and improving the tone of the reproduced sounds.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is an elevation of a talking-machine, broken away and sectioned in part. Fig. 2 is a top view of the machine, Figs. 3 and 4 are detail views in section on lines 3—3 and 4—4 of Fig. 2, respectively, and Fig. 5 is a detail view of the mounting for the tone-arm.

Referring to these drawings, 1 indicates the casing of the machine, this being of the usual boxlike form. Within the casing is the motor, indicated at 2, this being arranged in the usual or any suitable manner to drive a vertical shaft extending through the top of the casing and carrying a turntable 3 adapted to support a sound-record of disk form. The sound-box 4 is mounted upon the free end of the tone-arm 5 with its stylus 6 adapted to track in the groove of the record on the turntable 3. The tone-arm 5 is mounted for both horizontal and vertical movement upon a tubular member 7 secured to and extending within the casing of the machine. The means for supporting the tone-arm thus is shown in detail in Fig. 5. The end of the tone-arm is pivotally connected by horizontally disposed pivot-pins 8 to a ring 9 which is adapted to move circumferentially between the top of the member 7 and a collar 10 threaded thereon.

Within the casing 1 of the machine, the member 7 is enlarged and is divided to form two passageways as shown at 11, one at substantially a right angle to the other and both extending from the top to the bottom of the casing. Each of these two passageways of the member 7 is extended to the side of the machine opposite it by walls 12, 13, 14 and 15 arranged vertically between the top and bottom of the casing 1, so that two passageways for the sound-waves are provided from the member 7 through the casing to the distant sides of the latter. The walls 12 and 15 are substantially parallel to two adjacent sides of the casing or those sides of the casing may be utilized to form the walls of the sound passages; and the walls 13 and 14

diverge from the walls 12 and 15, respectively, so that the two sound passageways increase constantly in cross-sectional area to the ends thereof. Between the walls 13 and 14 is ample space for the motor 2. It will thus be seen that a double tapering sound-conveying passage of substantial length is provided so that the reproduced sounds will be considerably amplified, that this sound-conveyer extends through the casing of the machine, and that the taper of the conveyer is made sufficiently great without objectionably increasing the size of the casing and while leaving ample space for the motor.

In each of the branches of the sound-conveyer within the casing 1 is a support or resonance-board 16 extending lengthwise of the passage and disposed in a vertical plane. Each of these boards supports a plurality of deflecting vibrating resonators 17, preferably by having slots cut therein through which the resonators extend. The ends of the resonators extend in proximity to the walls of the passages but do not touch, as shown in Fig. 4, and the resonators are increased in width as the width of the passages increases. The resonators are preferably arranged as shown in Fig. 3, from which it will be seen that in each passage there are a number of sets of the resonators, those of each set being arranged one above another and slightly curved in the direction of the length of the passage, the curvature of each set being opposite to that of the adjacent sets.

When the reproduced sounds pass through the sound-conveyer, they cause the free ends of the resonators 17 to vibrate in harmony with them and in practice I have found that this affects both the volume and the quality of the reproduced sounds by increasing the volume and sweetening and clarifying the tone.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:—

1. A talking-machine comprising a rectangular casing, a motor therein, a turntable above the top of the casing driven by the motor, a tone-arm pivotally mounted at one corner of the top of the casing, a sound-box carried by the tone-arm and adapted to coact with a record on the turntable, and a sound-conveyer leading from said tone-arm within the casing, said conveyer being divided within the casing to form two branches extending along the sides of the casing adjacent to the corner where the tone-arm is mounted and having their exits at the sides opposite, substantially as set forth.

2. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a sound-conveyer to which the sound-

box is connected, and a plurality of resonators supported intermediate their ends within the sound-conveyer and having their ends disconnected from the sound-conveyer so as to be free to vibrate in harmony with the sound-waves, substantially as set forth.

3. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a sound-conveyer to which the sound-box is connected, and a plurality of thin resonators mounted within the sound-conveyer, curved in the direction of the length of the sound conveyer and having their ends free to vibrate in harmony with the sound-waves, substantially as set forth.

4. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a tapering sound-conveyer to which the sound-box is connected, and a plurality of resonators mounted within the sound-conveyer increasing in width toward the large end of the conveyer and having their ends free to vibrate in harmony with the sound-waves, substantially as set forth.

5. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a sound-conveyer to which the sound-box is connected, and a plurality of sets of resonators mounted within the sound-conveyer and having their ends free to vibrate in harmony with the sound-waves, adjacent sets of said resonators being oppositely curved in the direction of the length of the conveyer, substantially as set forth.

6. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a tapering sound-conveyer to which the sound-box is connected, and a plurality of sets of resonators mounted within the sound-conveyer, having their ends free to vibrate in harmony with the sound-waves and increasing in width toward the end of the conveyer, adjacent sets of said resonators being oppositely curved in the direction of the length of the conveyer, substantially as set forth.

7. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a sound-conveyer to which the sound box is connected, a support within the sound-conveyer, and a plurality of thin resonators extending through openings in said support across the sound conveyer and having both ends thereof free to vibrate in harmony with the sound-waves, substantially as set forth.

8. A talking-machine comprising a motor, a turntable driven thereby, a sound-box adapted to coact with a record on said turntable, a tapering sound-conveyer to which

the sound-box is connected, a support with-
in the sound-conveyer, and a plurality of
sets of thin resonators extending through
openings in said support, having both their
5 ends free to vibrate in harmony with the
sound-waves and increasing in size toward
the end of the sound-conveyer, adjacent sets
of said resonators being oppositely curved

in the direction of the length of the con-
veyer, substantially as set forth.

This specification signed and witnessed 10
this 22nd day of December, 1909.

JAMES ALOYSIUS RABBITT.

Witnesses:

J. K. CALDWELL,
GENJI KURIBARA.
