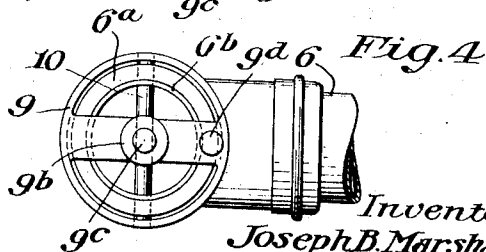
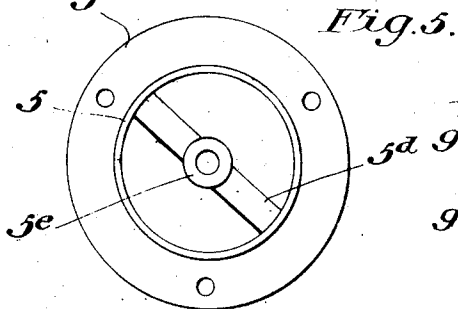
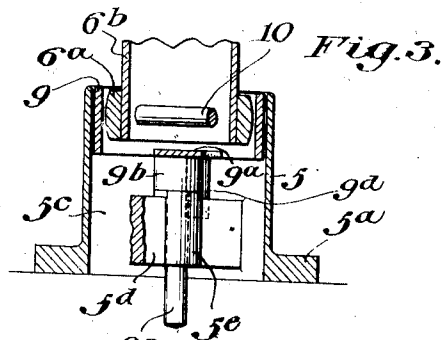
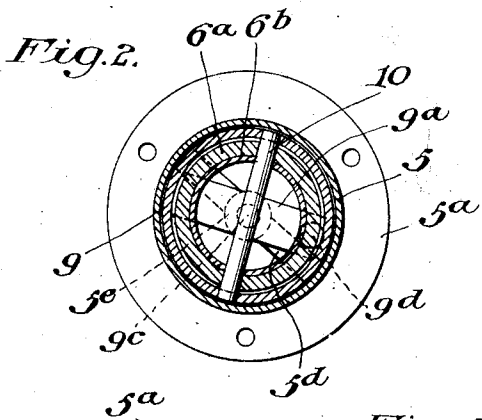
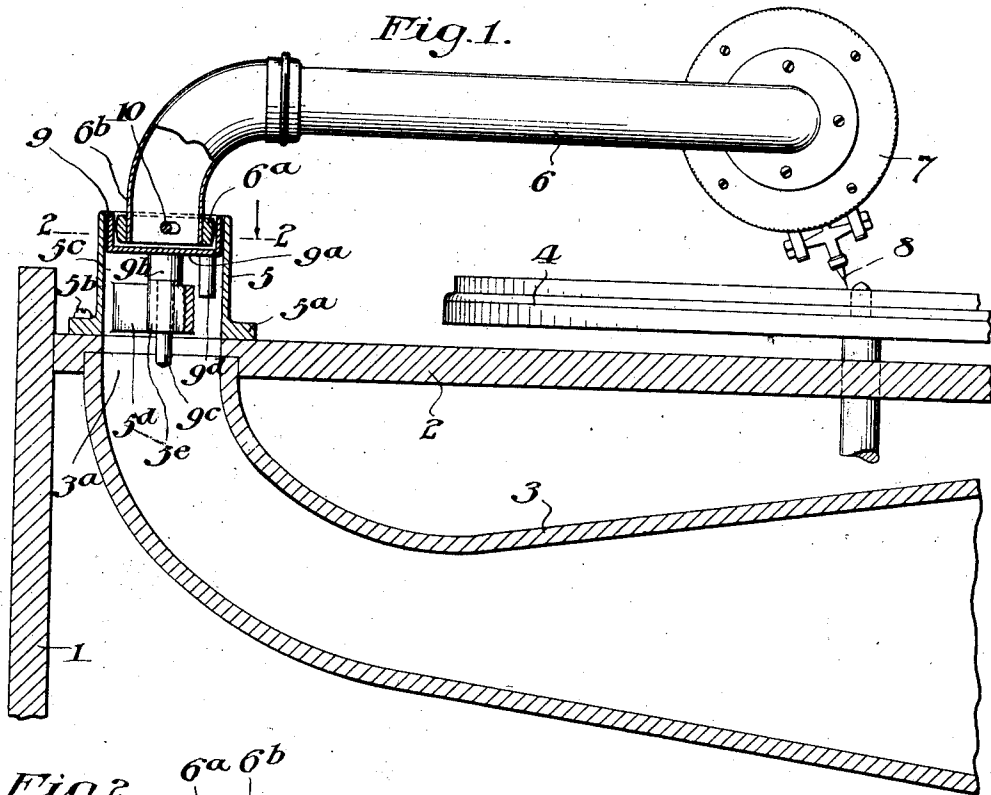


J. B. MARSHALL.
TALKING MACHINE.
APPLICATION FILED FEB. 8, 1916.

1,219,753.

Patented Mar. 20, 1917.



Inventor:
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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE.

1,219,753.

Specification of Letters Patent.

Patented Mar. 20, 1917.

Application filed February 8, 1916. Serial No. 76,928.

To all whom it may concern:

Be it known that I, JOSEPH B. MARSHALL, a citizen of the United States, residing in the city of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain Improvements in Talking-Machines, of which the following is a specification.

This improvement in talking machines relates more particularly to the means for supporting and connecting the tone arm so as to secure the desired limited lateral and vertical oscillatory movement thereof in a simple, convenient and efficient manner.

In the accompanying drawings, Figure 1 is a broken sectional side elevation of a part of a talking machine embodying my improvements; Fig. 2 is a sectional side view taken on the line 2—2 of Fig. 1; Fig. 3 is an irregular vertical sectional view taken through the parts shown in Fig. 2; Fig. 4 is a bottom plan view of the parts of my improvement directly connected with the tone arm, and Fig. 5 is a top plan view of the tone arm supporting device to be fixed on the deck of the machine.

My improvements, as illustrated in the drawings, are embodied in a talking machine comprising a case 1, containing the deck 2, the horn 3, and the turn-table 4, of usual character.

A tubular supporting device 5 is provided with the base flange 5^a, which is fixed to the deck by screws 5^b and contains the sound passage 5^c, which registers with the mouth 3^a of the horn, the support containing the cross-piece 5^d which is provided with the vertical bearing 5^e.

The tone arm 6, having the sound box 7 and stylus mechanism 8 connected with its forward end, is provided with a ring or collar 6^a which is fixed on the extremity of the downward extending elbow 6^b at the rear end of the tone arm, and this collar or ring is disposed concentrically within a ring or collar 9, which is disposed within the tubular support 5; a pin 10 extending through the parts 6^a, 6^b, and 9, whereby the

tone arm is pivotally supported so that it can oscillate in a vertical plane.

The ring 9 is provided with a bottom cross piece or bar 9^a which extends in the general direction of the tone arm, with a bearing 9^b which is adapted to rest on the top of the bearing 5^e, and with a vertical spindle 9^c which slips through and revolves in the bearing 5^e.

The part 9 has a downwardly extending stud 9^d which is fixed to the part 9^a and adapted to make contact, at the extremities of its oscillatory movement, with the part 5^d.

The horizontal movement of the tone arm is therefore limited by the engagement of the stud 9^d with the cross-bar 5^d at each extremity of the arc of oscillation, and the vertical movement of the tone arm is limited to a definite arc by the contact of the part 6^a with the part 9^a.

Having described my invention, I claim:

1. In a talking machine, the combination of a hollow support provided with a cross piece, a ring adapted to turn on said cross piece about a vertical axis, a projection on said ring adapted for engaging said cross piece to limit the movement of said ring, and a tone arm connected to said ring so as to oscillate on a horizontal axis, said ring and tone arm having means for limiting the oscillatory movement of the latter.

2. In a talking machine, the combination with the machine deck and horn, of a hollow member fixed on said deck in communication with said horn, said member containing a cross piece, provided with a vertical bearing; a ring adapted to oscillate about a vertical axis within said member, said ring containing a cross piece provided with a vertical bearing coacting with said cross piece and bearing first named, and a tone arm having an end thereof journaled within said ring on a horizontal axis.

3. In a talking machine, the combination with a machine deck and horn, of a vertically disposed hollow member fixed to said deck in communication with said horn,

said member containing a cross piece provided with a vertical spindle bearing, a ring journaled within said member on said cross piece, said ring having a cross piece 5 and a spindle thereon journaled in said bearing, a stud on said ring and adapted for engaging said cross piece first named

to limit the oscillatory movement of said ring, and a tone arm having an end thereof journaled in said ring on the horizontal 10 bearing means.

In testimony whereof, I have hereunto set my name this 27 day of January, 1916.

J. B. MARSHALL.