

1,034,015.

Patented July 30, 1912.

Fig. 1.

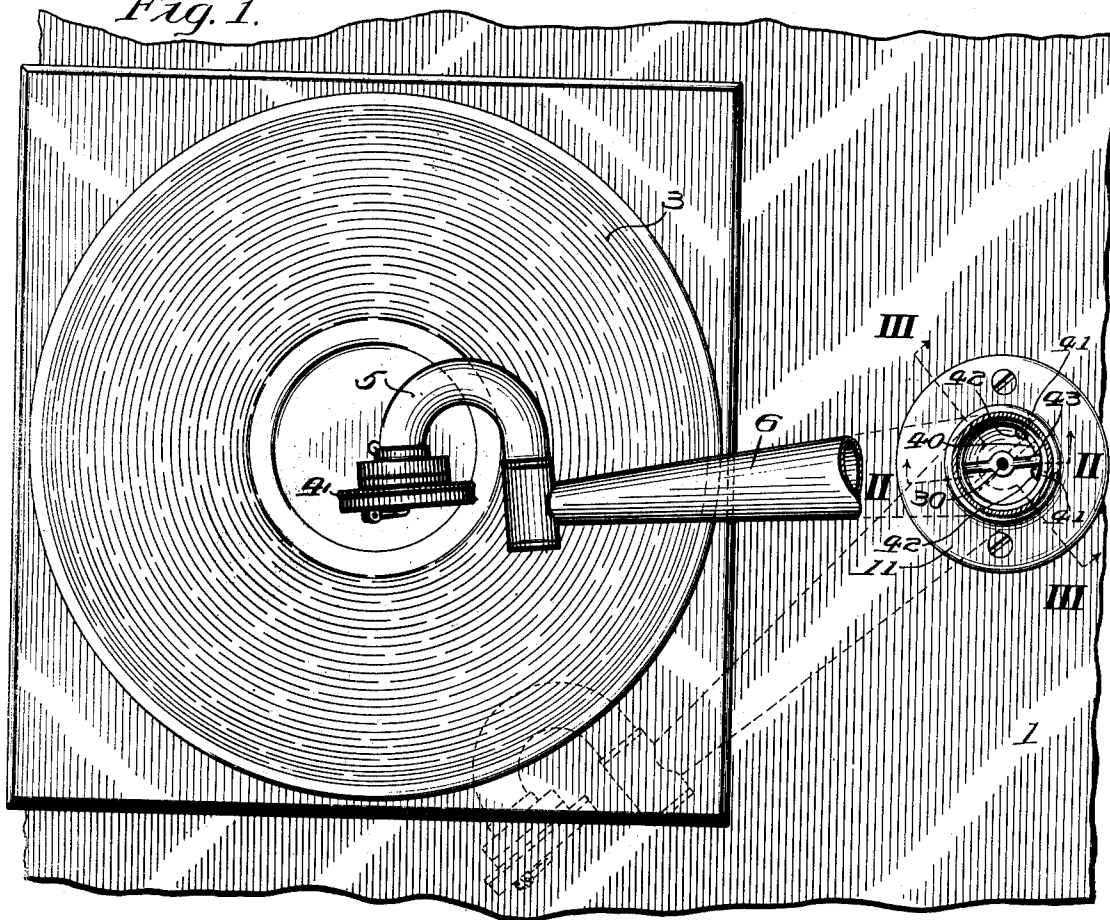
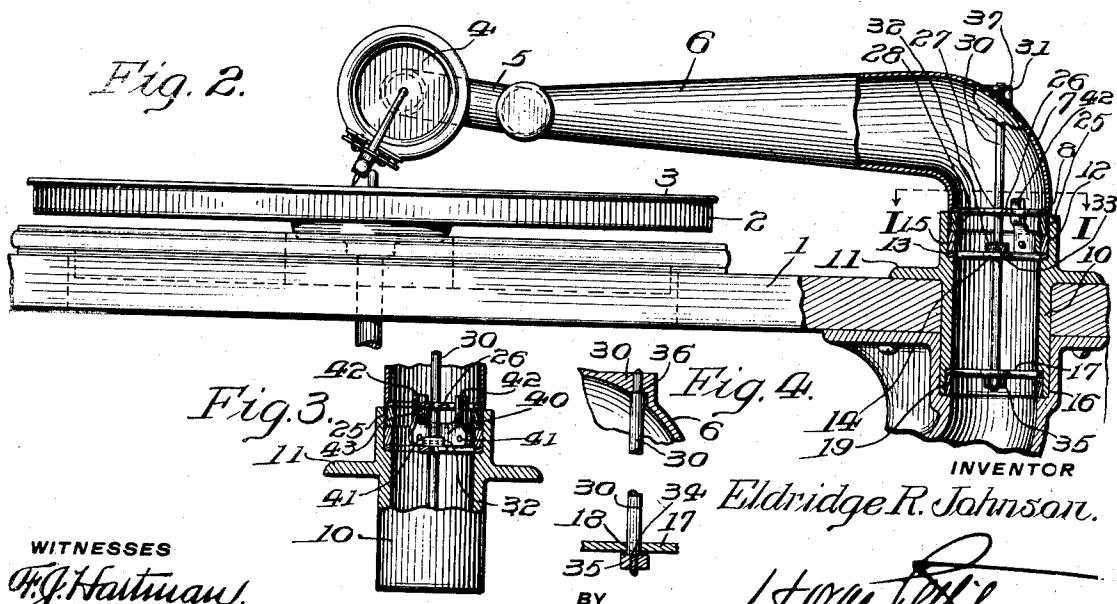


Fig. 2.



WITNESSES

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ELDRIDGE R. JOHNSON, OF MERION, PENNSYLVANIA, ASSIGNOR TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

TALKING-MACHINE.

1,034,015.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed January 25, 1910. Serial No. 539,927.

To all whom it may concern:

Be it known that I, ELDRIDGE R. JOHNSON, a citizen of the United States, and a resident of Merion, county of Montgomery, and State of Pennsylvania, have invented certain new and useful Improvements in Talking-Machines, of which the following is a full, clear, and exact disclosure, reference being had to the accompanying drawings, forming a part of this specification.

The main objects of this invention are to provide in a talking machine an improved support or mounting for a swinging sound box arm or tone arm; to provide improved means for limiting the movement of a tone arm; and to provide other improvements as will appear hereinafter.

In the accompanying drawings, Figure 1 is a fragmentary top plan view partially in horizontal section on line I—I of Fig. 2 of a talking machine constructed in accordance with this invention; Fig. 2 a fragmentary side elevation partly in vertical section on line II—II of Fig. 1, of the same; Fig. 3 a fragmentary side elevation partly in vertical section on line III—III of Fig. 1; and Fig. 4 a fragmentary vertical section of a portion of the same.

Referring to the drawings, one embodiment of this invention is shown applied to a talking machine comprising the usual casing having a horizontal supporting wall 1, carrying the usual turntable 2 for supporting a disk sound record 3. Arranged above the record support to cooperate with the record 3 is any suitable sound box or sound reproducer 4, which is pivoted in a well known manner by means of a U-tube 5, to the free smaller end of a tapering sound box arm or tone arm 6 with which it communicates. The free end of the tone arm 6 extends in a substantially horizontal direction and the larger end 7 of the tone arm is curved downwardly through an arc of about ninety degrees, terminating in a vertically disposed portion 8.

For supporting the tone arm 6 to swing about a fixed axis a bushing or tubular support 10 is provided, which extends tightly through an aperture provided therefor in the wall 1 of the casing. This bushing preferably projects above and below its supporting wall 1, and is provided with a

flange 11 integral therewith, which rests upon the upper surface of the wall to hold the bushing against downward movement.

The upper end of the bushing 10 is provided with an internal annular cylindrical recess 12, in the lower end of which tightly fits a circular spider 13, provided with a centrally arranged cylindrical aperture or bearing 14. This spider is held in place rigidly by a cylindrical ring 15, which fits snugly and is secured in any suitable manner in the recess above the spider. The lower end of the bushing 10 is also provided with an annular recess 16 in the upper end of which tightly fits a circular spider 17, having a central aperture 18, and this spider is held rigidly in place by a ring 19, which fits tightly and is secured in the recess below the spider.

The downturned end 7 of the tone arm 6 is cylindrical and fits snugly but is freely rotatable in the upper end of the bushing 10, in the recess above the ring 15. This downturned end 8 of the tone arm is also provided with an annular recess 25 in the upper end of which tightly fits a circular spider 26, having a central aperture 27, and this spider is held rigidly in place with respect to the tone arm by a ring 28, which is fitted in the recess below the spider.

For rotatably connecting the tone arm 6 to the bushing 10, a vertical pivot 30 extends rotatably through the central openings or bearings in the two spiders mounted in the bushing and also through the central opening or bearing in the spider mounted in the tone arm, and projects upwardly above the upper end of the bushing 10 through an aperture or bearing provided therefor in a lug 31, projecting outwardly from the upper surface of the tone arm 6 and integral therewith, these several bearings for the pivot being in vertical axial alinement.

To prevent movement of the pivot 30 downwardly, a collar 32 is removably fixed upon the pivot 30 by means of a pin 33 extending through the collar and the pivot, and this collar is arranged to bear upon the upper surface of the spider 13 in the upper end of the bushing. The lower end of the pivot 30 projects through the spider 17 in the lower end of the bushing and terminates below the spider. The portion of the pivot

projecting below the spider is reduced in diameter, to form a shoulder 34 spaced slightly below the bottom surface of the spider 17, and is threaded and provided with a nut 35, which is screwed tightly against the shoulder 34, to prevent the withdrawal of the pivot upwardly from its bearings, the pivot, however, having a slight amount of end play. The pivot is thus held in a fixed position axially by the two vertically spaced horizontal spiders 13 and 17 in the bushing 10, but is freely rotatable with respect to the bushing.

The upper end of the pivot 30 is preferably reduced in diameter, to form an upwardly facing shoulder 36, which is preferably arranged to engage against the inner surface of the tone arm and to support the weight of the tone arm. The tone arm 6 may be rigidly connected to the pivot 30 by means of a set screw 37, extending through the lug 31 of the tone arm and engaging against the pivot, or by any other suitable means.

For limiting the rotary movement of the tone arm 6, a stop is provided which consists of a yoke 40, which is rigidly secured within the bushing 10 and against the inner surface of the ring 15, in the upper end of the bushing by means of screws or bolts 41, which pass through the bushing from the outside thereof and are threaded into the yoke. This yoke is formed from a thin plate of metal or other suitable material, which is curved to conform to the inner cylindrical concave surface of the ring 15 and is provided with upwardly extending arms 42, which are arranged upon opposite sides respectively of a projection or bridge 43, of the spider 26, which is rigidly secured in the end of the tone arm 6.

The stop or yoke 40 is so proportioned and located that one arm of the yoke will engage against one side of the bridge 43 as the tone arm 6 is swung outwardly, to prevent the tone arm from swinging outwardly beyond what is necessary, and so that the other arm of the yoke will engage against the other side of the bridge as the tone arm is swung inwardly, to prevent any unnecessary inward movement of the tone arm. The arms 42 of the yoke are offset slightly inwardly so as to be normally out of contact with any part of the tone arm or parts carried thereby. The tone arm is thus freely revoluble upon its pivot 30 within the limits of the yoke or stop 40.

Although only a single form has been shown in which this invention may be embodied, it is obvious that many changes might be made in the construction illustrated without departing from the spirit of this invention or the scope of the appended claims.

Having thus fully described my inven-

tion what I claim and desire to protect by Letters Patent of the United States is:

1. In a talking machine, the combination with a tubular support, of fixed spaced bearings located within said support and coaxial therewith, a pivot mounted in said bearings, and a tone arm carried by said pivot and communicating with said support.

2. In a talking machine, the combination with a tubular support, of spaced spiders fixed in said support, a pivot in said support carried by said spiders, and a tone arm rotatable on said pivot and communicating with said support.

3. In a talking machine, the combination with a vertically arranged tubular support, of vertically spaced bearings fixed in said support coaxially therewith, a vertical pivot rotatably mounted in said bearings, and held against downward movement therein, and a rotatable tone arm mounted upon the upper end of said pivot and communicating with said support.

4. In a talking machine, the combination with a tubular support, of a tubular tone arm rotatable with respect to said support and forming a sound passage therewith, and means projecting in said passage for limiting the rotation of said tone arm.

5. In a talking machine, the combination with a tubular support, of a rotatable tubular tone arm communicating therewith, a projection within one of said tubular members and carried thereby, and a yoke within the other of said tubular members and carried thereby and embracing said projection to limit the rotation of said tone arm.

6. In a talking machine, the combination with a tubular support, of a pivot coaxial with said support, and carried thereby, a tubular tone arm rotatably connected to said tubular support by said pivot, a spider rigid with said tone arm and surrounding said pivot, a yoke within said support and having arms embracing a portion of said spider to limit the rotation of said tone arm, and means extending through said support and engaging said yoke to hold said yoke in position.

7. In a talking machine, the combination with a tubular support, of a tubular tone arm communicating therewith and provided with spaced bearings, and a pivot extending axially in said support and having a free end engaging in said bearings, for holding said tone arm rotatably in position.

8. In a talking machine, the combination with a tubular support having an upper open end, of a tubular tone arm having an outer portion extending transversely to said upper end of said support, and an inner portion longitudinally curved and terminating in an open end communicating with the upper end of said support, a pivot, and spaced means fixed with respect to said sup-

port for holding said pivot in fixed concentric longitudinal alinement, said pivot having a free end upon which said tone arm is mounted to swing in a fixed plane.

5 9. In a talking machine, the combination of a tubular support, of a tubular tone arm forming with said support a sound passage, a pivot in said passage, spaced bearings within said tubular support and fixed with
10 respect to said tone arm and said pivot, and spaced bearings in said tone arm fixed with respect to said pivot, whereby said tone arm is restrained to swing in a fixed plane.

15 10. In a talking machine, the combination with a support having a sound conveying passage, of a tubular tone arm communicating therewith and provided with spaced bearings, and a pivot mounted in said pas-

sage and having a free end extending outside of said support and engaging in said bearings for holding said tone arm rotatably in position. 20

11. In a talking machine, the combination with a support, of a pivot, spaced means carried by said support for holding said
25 pivot in fixed alinement longitudinally, said pivot having an upper free end, and a tone arm mounted upon said free end to swing in a fixed plane.

In witness whereof I have hereunto set
my hand this 22nd day of January A. D. 30
1910.

ELDRIDGE R. JOHNSON.

Witnesses:

RALPH L. FREEMAN,
CHARLES K. HADDON.