A. HAUG & B. G. ROYAL.

TALKING MACHINE.

APPLICATION FILED JUNE 11, 1907.

903,375. Patented Nov. 10, 1908.

2 SHEETS—SHEET 1.

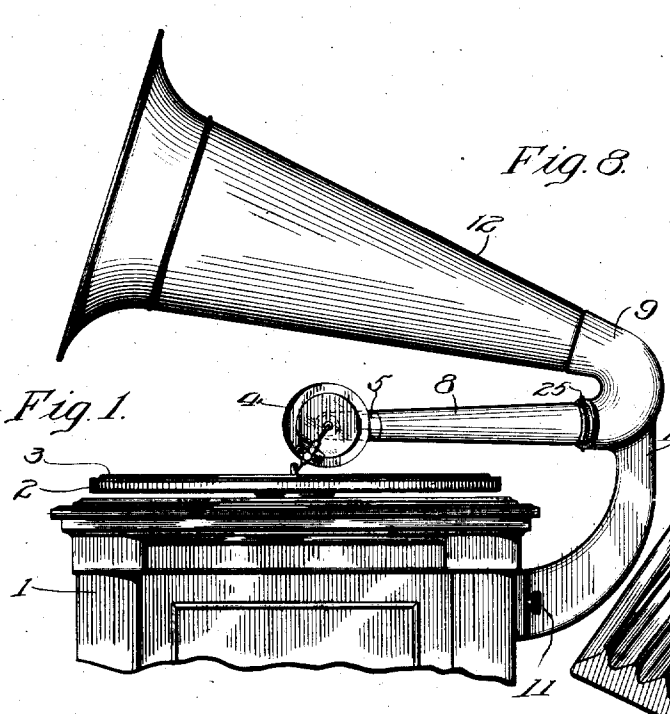

Fig. 1.

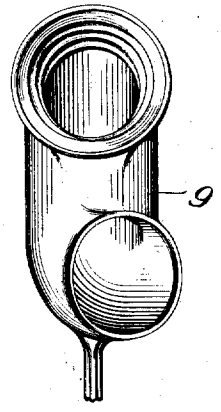

Fig. 8.

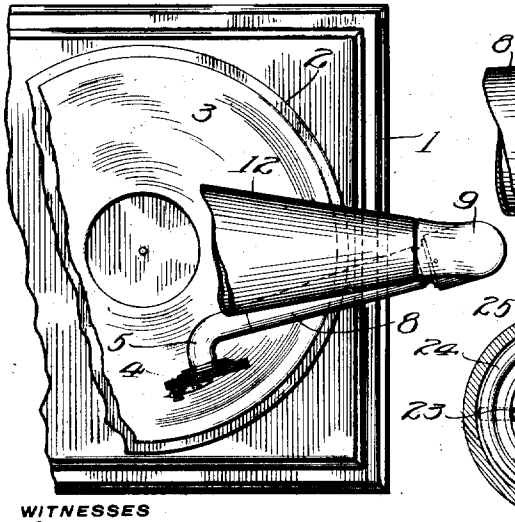

Fig. 2.

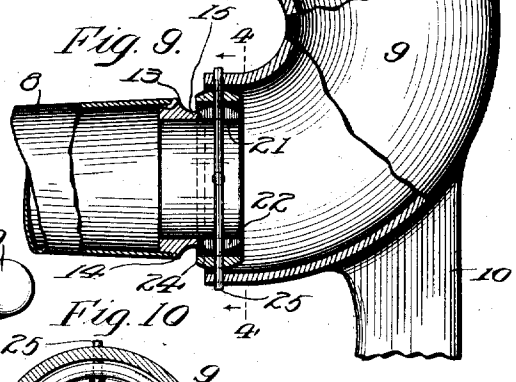

Fig. 9.

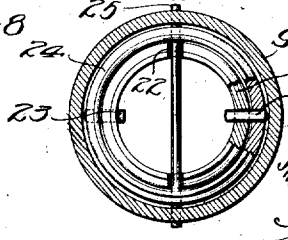

Fig. 10.

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2 SHEETS—SHEET 2.

Fig. 5

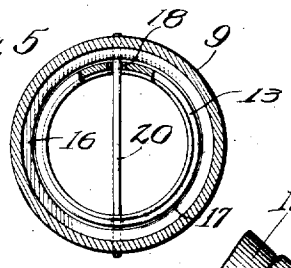
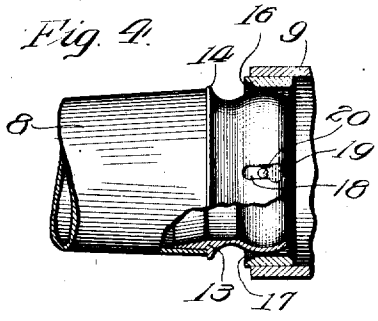


Fig. 4.



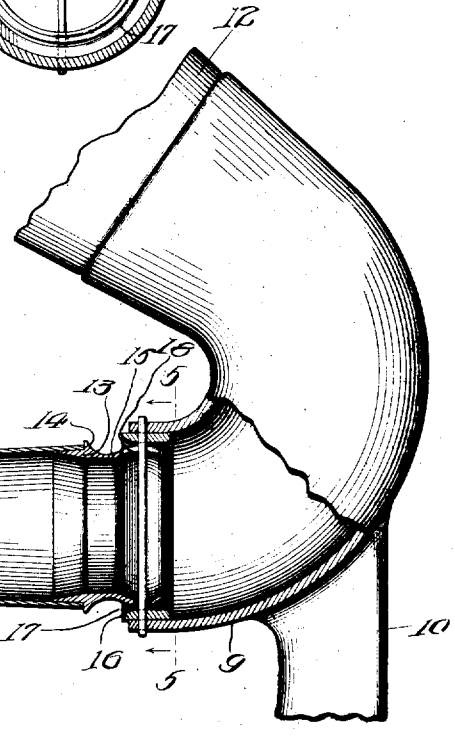


Fig. 3.

Fig. 6.

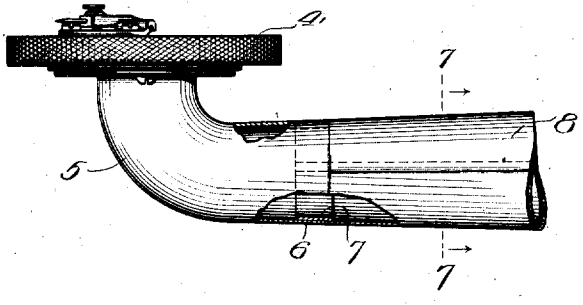


Fig. 7.

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UNITED STATES PATENT OFFICE.

ANDREW HAUG, OF CALDWELL, AND BELFORD G. ROYAL, OF CAMDEN, NEW JERSEY, ASSIGNORS TO UNIVERSAL TALKING MACHINE MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

TALKING-MACHINE.

No. 903,375. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed June 11, 1907. Serial No. 378,332.

To all whom it may concern:

Be it known that we, ANDREW HAUG, a citizen of the United States, and a resident of Caldwell, county of Essex, State of New Jersey, and BELFORD G. ROYAL, a citizen of the United States, and a resident of Camden, county of Camden, State of New Jersey, have jointly invented certain new and useful Improvements in Talking-Machines, of which the following is a full, clear, and complete disclosure.

Our invention relates particularly to improvements in that class of talking machines in which the sound box communicates with the amplifying horn proper through an intermediate sound arm, the principal objects of this invention being to simplify the construction of the arm and of the means connecting the arm and the horn, to lessen the cost of manufacture without detracting from the practical utility of these parts.

With this and other objects in view, the invention consists in the novel construction, combination and arrangement of parts described in the following specification and more particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side elevation of a talking machine constructed in accordance with this invention; Fig. 2 a fragmentary top plan view of the same; Fig. 3 a fragmentary side elevation partly in section of the joint between the arm and the horn; Fig. 4 a horizontal fragmentary section of the joint; Fig. 5 a vertical transverse section on line 5—5 of Fig. 3; Fig. 6 a bottom plan view showing how the sound box is attached to the taper arm; Fig. 7 a transverse vertical section on the line 7—7 of Fig. 6; Fig. 8 a front elevation in detail of the elbow and part of its supporting bracket; Fig. 9 a fragmentary side elevation partly in vertical section of a modified form of this invention; and Fig. 10 a transverse section on line 4—4 of Fig. 9.

The preferred form of this invention, as shown in Figs. 1 to 8 inclusive, comprises a cabinet 1, containing suitable mechanism for driving the turntable 2 mounted thereon, which supports the usual record 3.

The sound box 4 is secured to a tubular elbow 5, the outer end of which fits snugly over the reduced end 7 of the taper arm 8. The upper end of the taper arm is supported within the inner end of the elbow 9 to swing in any direction, by means to be hereinafter described in detail. The said elbow 9 is preferably formed integrally with a bracket 10, which supports it from the side of the cabinet of the machine by means of screws 11, and the upper end of the elbow opens into the lower end of the amplifying horn 12, which is screw threaded into the elbow.

The means for supporting the taper arm within the elbow 9 comprises a head 13, fitting tightly within the end of the arm adjacent the elbow, and provided with a shoulder 14 resting against the edge of the arm, and a spherical end 15 extending loosely within a bushing 16, which fits tightly within the end of the said elbow. The said end 15 is rounded inwardly from the shoulder 14 to points adjacent the outer edge of the bushing, forming a neck and is then curved outwardly in a spherical shape within the said bushing, and the outer edge of said bushing is accordingly rounded, so as to permit of the necessary amount of motion of the arm, and at the same time to keep the space between the arm and the elbow substantially closed. The head 13 in the end of the arm is provided on the under side of its spherical portion with a circular aperture 17 and in the opposite upper part of the spherical portion with a longitudinal slot 18, which has broadened extremities 19 to admit of the free movement of the arm about the pin 20, which passes through the end of the elbow and its sleeve and through the said apertures. In order to obtain a free movement of the arm it is necessary to have the apertures in the under part of its bushing, somewhat larger than the pin which forms the pivotal support.

As it is necessary for the sound box to swing over but one side of the turntable, the lower end of the elbow 9, supporting the sound box arm, has been diverted from the line of the upper end of the elbow, and is extended in a line to one side of the center of the turntable, while the upper end of the elbow is radial with respect to the table, thus bringing the reproducing horn in a symmetrical position with respect to the machine, and at the same time bringing the lower end of the elbow to one side thereof, and permitting the requisite extent of lateral move-

ment of the swinging taper arm consistent with a close joint between said arm and elbow.

In the modification of this invention shown in Figs. 9 and 10, we have formed the joint between the arm and the elbow by means of a spherical head 21, similar to that already described, fitting tightly within the end of the taper arm, and provided with diametrically opposite longitudinal slots 22, as before, but supported upon horizontal pins or pivots 23 loosely within a ring 24, which has spherical inner and outer surfaces and is supported upon a vertical pin or pivot 25, extending through the elbow and ring and passing loosely through the slots of the inner bushing which supports the taper arm. This arrangement permits the arm to be swung horizontally upon the vertical pivot 25, carrying the ring with it, and at the same time it may be swung vertically upon its horizontal pivots within the ring. Fig. 9 also shows one method of attaching the lower end of the horn to the upper end of the elbow, by means of the screw threads 26, the lower end of the horn being accordingly screw threaded.

The taper arm may be made with or without a longitudinal seam, and the elbow 9 and the elbow 10 may be made in a single integral casting or in separate parts, as preferred, and other changes in the details of the construction may be made without departing from the spirit of this invention or the scope of its claims.

Having thus fully described our invention, what we claim and desire to protect by Letters Patent of the United States is:

1. In a talking machine, the combination with a sound box, of an arm supporting the same, an elbow supporting said arm and an amplifying horn carried by said elbow, one arm, of said elbow being vertically out of alinement with the other arm thereof.

2. In a talking machine, the combination with a sound box, of an arm supporting the same, the outer end of said arm being provided with oppositely disposed apertures, and a tubular elbow supporting said arm having a pin passing through said apertures, one arm of said elbow being vertically out of alinement with the other arm thereof.

3. In a talking machine, the combination with a sound box of an arm supporting the same, the outer end of said arm being provided with oppositely disposed apertures, and a tubular elbow supporting said arm having a pin passing through said apertures, one of said apertures being longer than the other, one arm of said elbow being vertically out of alinement with the other arm thereof.

4. In a talking machine, the combination with a sound box of an arm supporting the same, the outer end of said arm being provided with oppositely disposed apertures, and a tubular support for said arm having a pin passing through said apertures, one of said apertures being longer than the other and being provided with enlarged ends.

5. In a talking machine, the combination with a sound box of an arm supporting said sound box, and provided with a spherical head having oppositely disposed apertures, one of said apertures being longer than the other and having enlarged ends, and a support for said head comprising an elbow and a cylindrical bushing fitting tightly therein and having a pin secured thereto extending through said apertures in said head.

6. In a talking machine, the combination with a sound box of an arm supporting said sound box, and provided with a spherical head having oppositely disposed apertures, one of said apertures being longer than the other, and a support for said head comprising a tubular connection, a bushing fitting tightly within one end of said connection, and a pin passing through said connection and bushing and through the said apertures in the head.

7. In a talking machine, the combination with a sound box, of an arm supporting the same, the outer end of said arm being provided with oppositely disposed apertures, and a tubular support for said arm having a pin passing through said apertures, one of said apertures being vertically above and longer than the other, and having an enlarged end.

8. In a talking machine, the combination with a sound box, of an arm supporting said sound box, and provided with a spherical head having oppositely disposed apertures, one of said apertures being longer than the other, said head having a shoulder resting against the edge of said arm, said shoulder being rounded inwardly to meet the spherical portion of the head, a cylindrical support for said head surrounding the same, the inner edge of said support being rounded to correspond to the curved surface of said shoulder, and a pin through said cylindrical support and said apertures in said head to retain the head in position.

9. In a talking machine, the combination with a sound box, of an arm supporting said sound box, and provided with a spherical head having oppositely disposed apertures, one of said apertures being vertically above and longer than the other, said head having a shoulder resting against the edge of said arm, said shoulder being rounded inwardly to meet the spherical portion of the head, a cylindrical support for said head surrounding the same, the inner edge of said support being rounded to correspond to the curved surface of said shoulder, and a pin through said cylindrical support and said apertures in said head to retain the head in position.

10. In a talking machine a swinging sound

arm, and a mounting therefor comprising a head, means pivoted to the under side of said head for swinging said arm laterally or vertically, means upon the upper side of said head for limiting the vertical motion of said arm, said arm being mounted to swing through a limited arc on an axis extending longitudinally of said arm through its point of support only when said arm is at one extremity of its vertical movement.

11. In a talking machine, the combination with an elbow of a sound conducting arm communicating with one arm of said elbow and a sound amplifier communicating with the other arm of said elbow, one arm of said elbow being vertically out of alinement with the other arm thereof.

12. In a talking machine the combination with a record turn-table of an elbow, a sound box arm supported by one arm of said elbow and limited to swing upon one side of the center of said table and a straight sound amplifier rigidly supported by the other arm of said elbow, substantially in perpendicular alinement with a diameter of said table.

13. In a talking machine the combination with a turn-table of an acute tubular elbow, a swinging sound arm supported by one arm of said elbow, and a straight amplifier supported by the other arm of said elbow, the arms of said elbow being perpendicularly out of alinement with respect to the plane of said turn-table.

14. In a talking machine, the combination with a turn-table of a fixed tubular elbow having one arm arranged with its axis substantially in an axial plane of said turn-table and having its other arm oblique to said plane, of a sound amplifier communicating with said first mentioned arm, and a swinging sound conveying arm supported by said oblique arm.

15. In a talking machine the combination with a swinging tubular member, of a member supporting the same, one of said members being provided with an elongated aperture having an enlarged portion and the other of said members being provided with a pin engaging in said aperture.

16. In a talking machine the combination with a tubular arm provided with a head, of a support for said head comprising a tubular member, a bushing fitting therein, and a pin passing through said tubular member, said bushing and said arm.

17. In a talking machine the combination with a tubular arm provided with a spherical head, having an inwardly curved neck, of a support for said head surrounding the same.

18. In a talking machine the combination with a tubular arm provided with a spherical head, having an inwardly curved neck, of a support for said head surrounding the same, said support having its inner edge rounded to conform to the curved surface of said neck.

19. In a talking machine, the combination with a tubular arm of a spherical head having a shoulder resting against the edge of said arm, said shoulder being rounded inwardly to meet the spherical portion of said head, and a support for said head surrounding the same.

20. In a talking machine, the combination with a tubular arm of a spherical head having a shoulder resting against the edge of said arm, said shoulder being rounded inwardly to meet the spherical portion of said head, and a support for said head surrounding the same, the inner edge of said support being rounded to correspond to the curved surface of said shoulder.

21. In a talking machine the combination of a hollow arm provided with oppositely disposed apertures, one of said apertures being elongated and provided with an enlarged portion, a pin passing through said apertures, and a support for said pin.

22. In a talking machine, the combination of two members, one of said members being pivoted upon one side to the other member, and being provided upon its opposite side with an elongated opening having an enlarged end, and the other of said members being provided with a projection extending into said opening.

23. In a talking machine the combination with an arm mounted to swing laterally or vertically, of means for limiting the vertical movement of said arm, said arm being mounted to swing through a limited arc about an axis extending longitudinally of said arm only when said arm is at one end of its vertical movement.

24. In a talking machine, the combination of two members, one of said members being rotatably connected upon one side to the other member, and being provided upon its opposite side with an elongated opening having an enlarged end, and the other of said members being provided with a projection extending into said opening.

25. In a talking machine, the combination with a sound box, of a tubular swinging arm supporting said box, and provided with a head, a support for said head comprising a tubular member, a bushing fitting therein, and a pin passing through said tubular member, said bushing and said arm.

26. In a talking machine, the combination with a swinging tubular arm, of a sound box supported by one end thereof and a spherical head upon the other end of said arm having an inwardly curved neck, and a support for said head surrounding the same.

In witness whereof we have hereunto set our hands this 7th day of June 1907.

ANDREW HAUG.
BELFORD G. ROYAL.

Witnesses:
ANNA LIPSHITZ,
H. L. DE RICHEMOND.