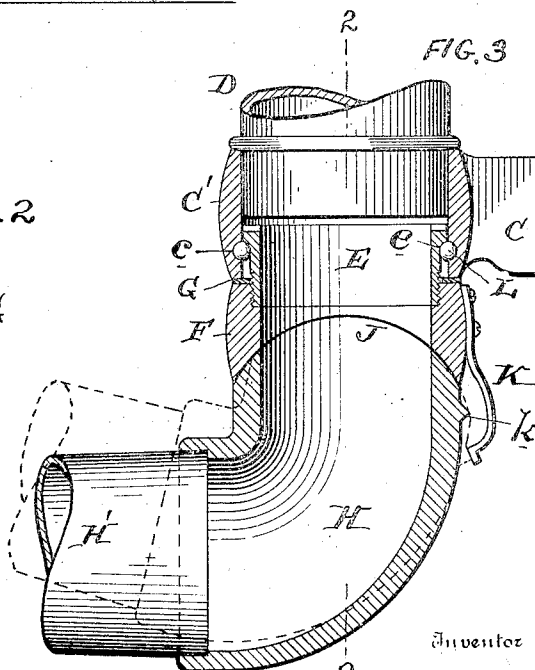
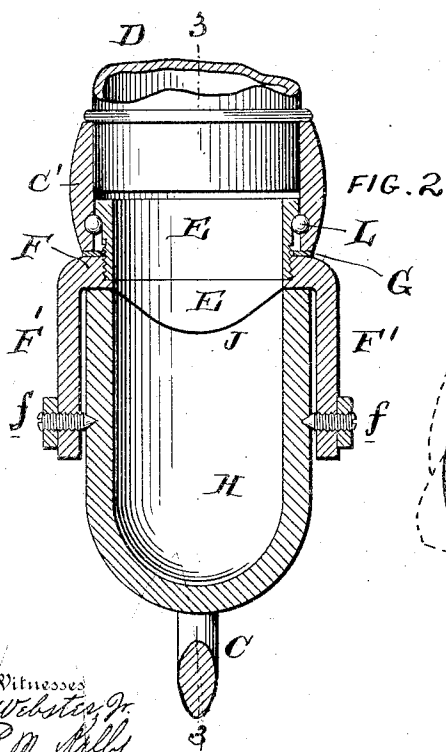
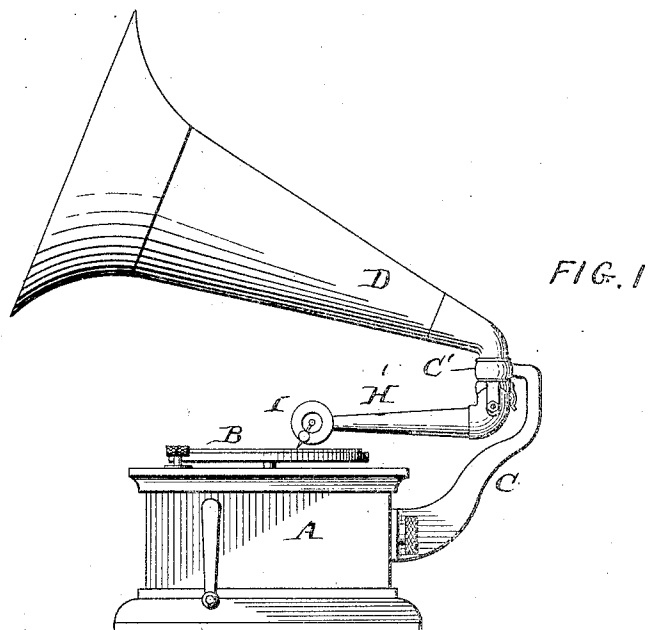


R. L. GIBSON.
TALKING MACHINE.
APPLICATION FILED MAY 2, 1905.

957,206.

Patented May 10, 1910.



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By

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UNITED STATES PATENT OFFICE.

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TALKING-MACHINE.

957,206.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT L. GIBSON, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Talking-Machines, of which the following is a specification.

My invention has reference to talking machines and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawing which forms part thereof.

The object of my invention is to provide a construction of universal arm for the sound box which shall embody simplicity and capacity for movement with the least possible resistance.

In carrying out my invention, I provide a bracket having a tubular neck adapted to support the horn, and combine therewith a tubular arm carrying the sound box at its free end and having the other end journaled in the neck of the bracket through the medium of antifriction balls said balls fitting into a groove semicircular in cross section formed in the neck of the bracket and supporting a flange secured to the pivoted end of the tubular arm whereby the arm is centralized and supported by the balls.

My invention also comprehends details of construction which, together with the features above specified will be better understood by reference to the drawings, in which:

Figure 1 is a side elevation of a gramophone or talking machine embodying my invention; Fig. 2 is a sectional elevation on line 2—2 of Fig. 3 showing the manner of supporting the tubular arm which carries the sound box; and Fig. 3 is a similar view, on line 3—3 of Fig. 2.

A is the motor box or case which rotates the table or support B carrying the record disk.

C is a bracket or arm secured to the side of the box or case A and terminating in a tubular end C', the aperture having a vertical axis.

The horn D is supported by the bracket and is sleeved into the tubular part so as to be adjustable thereon and permit the horn to be turned in any direction in which the sound waves are to be propagated.

H' is a tubular arm carrying at its free end the sound box I and having its other

end terminating in a vertical tubular portion F adjustably connecting with the tubular portion C' of the bracket whereby said arm may swing thereon as a center. More specifically this connection consists of the tubular part F into which is screwed or otherwise secured a bushing E having a flange e the diameter of which is less than the internal diameter of the tubular end C' of the bracket C. The interior of the end C' is provided with a groove e near its lower part which forms a trackway; and said groove is made preferably semi-circular in cross section to receive a series of anti-friction balls L and in which said balls are free to travel, they being held therein by the tubular bushing E having its flange e resting upon the balls. In this manner the vertical tubular part F of the tubular arm H' is free to rotate about a vertical axis with the least possible frictional resistance.

To prevent any rattling or grinding between the parts C' and F, I prefer to place between them an annular washer G of insulating or non-metallic composition. This washer should not be sufficiently thick to produce any binding or undue friction.

The parts F and H' of the tubular arm are jointed on a transverse axis. To secure this structure, I provide the part F with downwardly extending side arms F' which have pivot screws f upon which the elbow part H of the arm H' rotates. This part H' is preferably made with a taper, being larger adjacent to the pivots f and also turned upward in an elbow H. The juncture of this elbow and part F is made in a cylindrical plane whose axis is the pivots f. This junction of the two parts H and F is indicated at J and is preferably formed with a very slight clearance so as not to create any friction between the said parts H and F, but not enough of clearance to permit air waves to escape, and in that way reduce the effectiveness of the articulation.

To enable the free end of the arm H' to be turned up and held out of the way of the record tablet when replacing it with a new one, I provide a spring catch K on the part F which engages a lug k on the elbow H of the tubular arm H'. This supports the free end of the arm in an elevated position together with the sound box. When the arm is lowered into sound producing position with the stylus of the sound box resting

upon the record tablet, the lug k of the arm is above and clear of the spring catch K as shown and consequently there is no interference with the free movement of the arm both vertically and laterally at its free end. The weight of the part H' of the arm pulls down upon the pivots f during sound reproduction and consequently the support of the part F upon the balls is uniform and evenly distributed, so that there is no material friction. This freedom of lateral movement enables the stylus to follow the grooves of the record tablet without material resistance thereby enabling a more sensitive response by the sound box to the variations of the record grooves upon the stylus.

While I prefer the construction shown, I do not confine myself to the details as these may be modified in various ways without departing from the spirit of my invention.

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

1. In a talking machine the combination of the bracket having a tubular end having a trackway for antifriction balls, a tubular arm carrying at one end a sound box, a flanged bushing secured to the other end of the tubular arm and having an external diameter smaller than the internal diameter of the tubular end of the bracket, antifriction balls arranged between the trackway and the flange of the bushing for supporting the pivoted end of the tubular arm, and a horn supported upon the tubular end of the bracket independent of the bushing and pivoted arm.

2. In a talking machine the combination of the bracket having a tubular end having a trackway for antifriction balls, a tubular arm carrying at one end a sound box, a flanged bushing secured to the other end of the tubular arm and having an external diameter smaller than the internal diameter of the tubular end of the bracket, antifriction balls arranged between the trackway and flange of the bushing for supporting the pivoted end of the tubular arm, a non-metallic washer surrounding the bushing and interposed between the upper end of the tubular arm and bottom of the tubular end of the bracket, and a horn supported upon the tubular end of the bracket independent of the bushing and pivoted arm.

3. In a talking machine the combination of the bracket having a tubular end having a trackway for antifriction balls, a tubular arm consisting of a vertical pivoted part and a horizontal tubular part carrying at one end a sound box and having its other end pivoted to the vertical pivoted part so as to swing vertically about a transverse axis, a flanged bushing secured to the vertical tubular part of the arm and having an

external diameter smaller than the internal diameter of the tubular end of the bracket, antifriction balls arranged between the trackway and flange of the bushing for supporting the pivoted end of the tubular arm, and a horn supported upon the tubular end of the bracket independent of the bushing and pivoted arm.

4. In a talking machine the combination of the bracket having a tubular end having a trackway for antifriction balls, a tubular arm consisting of a vertical pivoted part and a horizontal tubular part carrying at one end a sound box and having its other end pivoted to the vertical pivoted part so as to swing vertically about a transverse axis, a flanged bushing secured to the vertical tubular part of the arm and having an external diameter smaller than the internal diameter of the tubular end of the bracket, antifriction balls arranged between the trackway and flange of the bushing for supporting the pivoted end of the tubular arm, a spring catch to hold the horizontal tubular part of the arm in an elevated position upon the vertical tubular part, and a horn supported upon the tubular end of the bracket independent of the bushing and pivoted arm.

5. In a talking machine, the combination with a bracket having a tubular end provided with a groove for antifriction balls, a horn supported upon the tubular end, a tubular arm carrying at one end a sound box, and having its other end turned upward beneath the tubular end of the bracket, a flanged bushing secured upon the upwardly turned end of the tubular arm, and antifriction balls fitting into the groove of the tubular end of the bracket and supporting the flange of the bushing.

6. In a talking machine, the combination with a bracket having a tubular end provided with a groove semicircular in cross section for antifriction balls, a horn supported upon the tubular end, a tubular arm carrying at one end a sound box, and having its other end turned upward beneath the tubular end of the bracket, a flanged bushing screwed upon the upwardly turned end of the tubular arm, and antifriction balls fitting into the groove of the tubular end of the bracket and supporting the flange of the bushing.

7. In a talking machine, the combination with a bracket having a tubular end provided with a groove for antifriction balls, a horn supported upon the tubular end, a tubular arm carrying at one end a sound box and having the other end turned upward beneath the tubular end of the bracket and also being jointed so that the sound box end may be turned upward, means to support the end of the arm in its turned up position, a flanged bushing secured upon the upwardly

turned end of the tubular arm, and anti-friction balls fitting into the groove of the tubular end of the bracket and supporting the flange of the bushing.

8. In a talking machine, a hollow support, a stationary horn carried by the hollow support, a tubular arm formed of two parts hinged together upon a transverse axis near the hollow support one part being entirely supported from within said support to swing upon a vertical axis and the other part carrying the sound box, and a spring catch connected to one of the parts of the tubular arm adapted to catch upon the other part of the arm to lock the sound box end of the arm in an elevated position when sufficiently raised, but at all other times to be out of locking contact.

9. The combination of a swinging arm carrying the reproducer at one end, a tubular support, a ring mounted on said tubular support to turn in a horizontal plane side arms depending from said ring and trunnions outside of said support connecting said side arms to the swinging arm to permit said arm to turn in a vertical plane.

10. The combination of a swinging arm carrying the reproducer at one end, a stationary arm having a circular opening provided with a circular bearing upon its inner wall, supporting means supported by and to turn upon said bearing and horizontal trunnions supported by said means outside of said opening and engaging said swinging arm at its other end to permit vertical movement of said swinging arm.

11. In a talking machine the combination with a sound conveying tube, a fixed support having a circular opening therein, a horizontal circular bearing provided upon one of said parts, circular supporting means for said tube conforming to said opening and tube and engaging said bearing to support said tube and to permit horizontal swinging movement of said tube and opposite horizontal trunnions supported by said fixed support outside of said circular opening to support said conveying tube and to permit vertical swinging movement of said conveying tube.

12. In a talking machine, the combination with a support having an opening therein, of a hollow bushing rotatably mounted and entirely supported from within said opening and having a portion projecting outside of said opening, and a tubular sound box arm communicating with said bushing, and wholly supported by said projecting portion.

13. In a talking machine, the combination with a support having an opening therein, of a hollow bushing rotatably mounted and entirely supported from within said opening and having a portion projecting outside of said opening, a tubular sound box arm communicating with said bushing and

wholly supported by said projecting portion, said sound box arm comprising relatively movable intercommunicating portions.

14. In a talking machine, the combination with a support having an opening, of a flanged bushing mounted to oscillate in said opening and projecting from said support, a sound box arm threaded upon said bushing, and an annular washer of insulating material surrounding said bushing between and in contact with said arm and said support.

15. In a talking machine, the combination with a support having an opening, of a flanged bushing mounted to oscillate in said opening and projecting from said support, a jointed sound box arm threaded upon said bushing, and an annular washer of insulating material surrounding said bushing between and in contact with said arm and said support.

16. In a talking machine, the combination with a support having a cylindrical opening provided with an internal groove substantially semi-circular in transverse section, a flanged bushing in said opening, balls mounted in said groove and supporting said flanged bushing, and a tubular sound box arm carried by said bushing and communicating therewith.

17. In a talking machine, the combination with a support having a cylindrical opening provided with an internal groove substantially semi-circular in transverse section, a flanged bushing in said opening, balls mounted in said groove and supporting said flanged bushing, and a jointed tubular sound box arm carried by said bushing and communicating therewith.

18. In a talking machine, the combination with a support having a cylindrical opening provided with an internal groove substantially semi-circular in transverse section, a flanged bushing in said opening, balls mounted in said groove and supporting said flanged bushing, a jointed tubular sound box arm carried by said bushing and communicating therewith, and an annular washer of insulating material surrounding said bushing and between and in contact with said support and said arm.

19. In a talking machine, the combination with a support provided with an opening, of a bushing mounted in said opening, a tubular sound box arm comprising two communicating portions, one of said portions being rigidly secured to said bushing and communicating therewith, side arms depending from said portion, and a pivotal connection between said side arms and said other portion of said sound box arm.

20. The combination with a support having an opening, of a hollow bushing rotatably mounted in said opening and having a portion projecting outside of said opening, anti-friction balls between the interior

of said support and the exterior of said bushing, and a tubular sound box arm communicating with said bushing and wholly supported by said projecting portion.

21. The combination with a support having an opening, of a hollow bushing having one end flanged and supported within said opening and its other end projecting outside of said opening, anti-friction balls between said flanged end and the interior of said support, and a tubular sound box arm carried by said projecting end.

22. In a talking machine, the combination with a support having an opening, of a hollow bushing rotatably mounted upon a fixed axis and entirely supported from within said opening and having a portion projecting outside of said opening, and a tubular sound box arm communicating with said bushing and wholly supported by said projecting portion.

23. In a talking machine, the combination with a support having an opening, of a hollow bushing rotatably supported entirely from within said opening, a pair of arms supported by said bushing and extending outside of said opening, a tubular sound box arm communicating with said bushing, and a pivotal connection between said pair of arms and said sound box arm, said sound box arm being entirely supported through said pivotal connection.

24. In a talking machine, the combination with a support having an opening, of a hollow rotatable bushing within said opening, and having one end projecting outside of said support, rotatable anti-friction means between the interior of said support and the exterior of said bushing forming the sole support for said bushing, and a tubular sound box arm carried by said projecting end.

25. In a talking machine, the combination with a support having an opening, of a hollow rotatable bushing within said opening, rotatable anti-friction means between the interior of said support, and the exterior of

said bushing, and a hollow sound box arm entirely supported by said bushing, said sound box arm being formed of relatively movable inter-communicating portions.

26. In a talking machine, the combination with a case, of a bracket secured thereto and extending upwardly therefrom and terminating in a tubular end, a rotatable bushing entirely supported from within said tubular end, and having an end projecting outside thereof, and a tubular sound box arm entirely supported by said projecting end.

27. In a talking machine, the combination of a tubular support having an internal track way for rotary anti-friction means, a rotatable bushing in said tubular support and having an external diameter smaller than the internal diameter of the support, anti-friction means arranged between the track way and the bushing, sound amplifying means carried by said tubular support, and a tubular sound box arm carried by said bushing.

28. The combination with a bracket attached at one end to the casing of a talking machine and having a tubular socket at its free end, of a rotary sleeve carried by said socket and having its lower end projecting beyond the lower edge of said socket, an adjustable piece carried by said projecting end of the rotary sleeve, horizontal pivots supported by said ring piece, a sound conveying arm supported by said pivots and having an upturned and curved end, a tubular piece having a complementary curved lower end interposed between the ring piece and the upturned curved end of the sound conveying arm, and a yielding cushion interposed between the said tubular piece and said ring piece.

In testimony of which invention, I hereunto set my hand.

ROBERT L. GIBSON.

Witnesses:

J. WALTER HILLIARD,
JAS. R. NECK.