L. P. VALIQUET.

SOUND BOX FOR TALKING MACHINES.

APPLICATION FILED OCT. 28, 1903.

946,589. Patented Jan. 18, 1910.

Fig. 1.

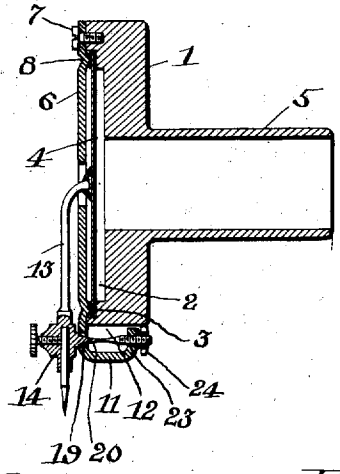


Fig. 2.

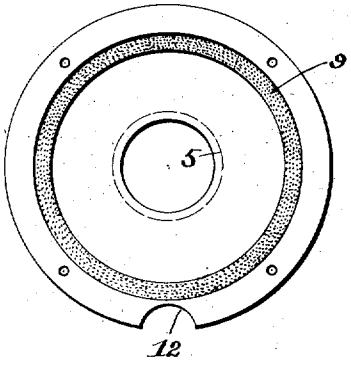


Fig. 3.

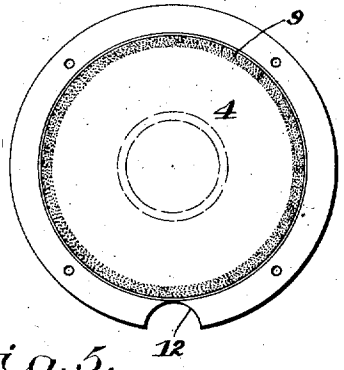


Fig. 4.

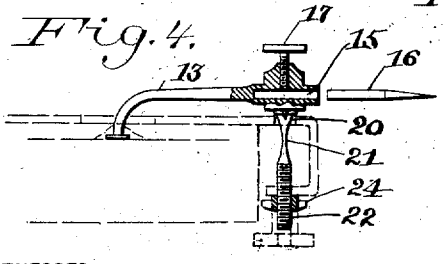
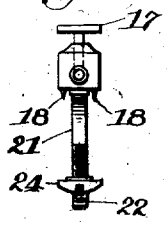


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS P. VALIQUET, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

SOUND-BOX FOR TALKING-MACHINES.

946,589. Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed October 28, 1903. Serial No. 178,932.

To all whom it may concern:

Be it known that I, LOUIS P. VALIQUET, a citizen of New York city, county of New York, State of New York, have invented certain new and useful Improvements in Sound-Boxes for Talking-Machines, (Case A,) of which the following is a full, clear, and complete disclosure.

The main objects of my invention are to provide an improved sound box casing, an improved mounting for a stylus bar, an improved mounting for a diaphragm and other improvements as will appear hereinafter.

In the drawings, Figure 1 is a central vertical section of a sound box constructed in accordance with this invention; Fig. 2, a face view of the same with the cover thereof removed, showing the annular cushion of insulating material upon which the diaphragm is seated; Fig. 3 a similar view showing the diaphragm in position; Fig. 4, a side elevation, partly in section of the stylus bar and its mounting, the sound box casing being indicated in dotted lines; and Fig. 5 is an end elevation of the stylus bar.

Referring to the drawings, the casing of the sound box comprises a body member 1, which is provided in the face thereof with a circular recess 2, forming a diaphragm chamber. Within this chamber and adjacent the front thereof, is provided an annular seat 3 for the diaphragm 4. The body of the sound box is provided with a rearwardly extending tubular portion 5 for connection with the usual amplifier. A cover 6, removably secured upon the body of the sound box by screws 7, serves to secure the diaphragm in position on its seat by being provided with an annular bead 8, which is cast, pressed, or otherwise formed upon the inner seat of the cover, and projects within the disphragm chamber in close proximity to the annular seat upon which the diaphragm rests. An insulating annulus 9 of non-sonorous material, such, for example, as felt, or fiber, is interposed between the inner side of the diaphragm and its seat, and between the opposite or outer side thereof and the bead of the cover. This insulation is preferably applied to one or more of the opposing faces in the form of an adhering coating as indicated in Figs. 2 and 3. The insulating material is caused to adhere by first coating the portion to be covered with a suitable cement, and then dipping the cemented part into a mass of the material, which latter will then be taken up in sufficient quantity to form an effective insulating cushion. In thus insulating the diaphragm, local or sympathetic vibration is avoided by preventing the vibration imparted to the stylus from being transmitted to the sound box casing, and, as a result, the tones of the reproductions will be free from the objectionable metallic qualities common to apparatus now in general use.

The sound box cover at its lower edge is extended in the form of a yielding, approximately U-shaped lug 11, which lies in a recess 12, forming the body portion of the box, and is designed to serve as a support for the stylus bar 13. The stylus bar 13 curves inward at its upper end and projects through a central opening provided therefor in the sound box cover, and is phonetically connected to the diaphragm in any well known manner, as, for example, by adhesive wax, or other material. The opposite or lower end of the stylus bar is provided with a socket 15 for the stylus 16, and the usual set screw 17 for holding the stylus in place. The mounting for the stylus bar comprises a pair of pointed studs 18, which project transversely from the bar, and which are seated in shallow depressions, or bearings, formed in the outer front surface of the U-shaped extension of the sound box cover, and which are equi spaced upon opposite sides of an opening 19 therein, through which extends the spring arm 20 for holding the bar in place. The spring arm 20 is integral with the stylus bar and projects substantially at right angles therefrom, perpendicular to the diaphragm and in the plane of the axis of oscillation of the stylus bar, the spring arm and the stylus bar together forming a substantially L-shaped holder. This spring arm is reduced in cross section for a portion of its length as indicated at 21, to make the bar sufficiently flexible to serve, not only to hold the bar upon its bearings, but also as a spring to exert an influence upon the oscillation of the bar. Beyond the reduced portion, the spring arm terminates in a threaded extension 22, which projects through an opening 23 in the inner lug of the U-shaped extension, and is engaged by a nut 24 which contacts with the

rear side of the lug to apply a tension longitudinal of the spring arm. The nut may be formed for engagement with a special form of screw driver or may be formed as indicated by dotted lines in Fig. 4, with a milled head to be readily operated by hand.

In the operation of this invention, after the parts are assembled as shown in Fig. 1, the nut 24 may be turned to bring to bear a sufficient amount of tension upon the spring arm for affecting a proper regulation of the oscillation of the stylus bar to produce the best results.

It is evident, of course, that various changes could be made in the details of construction shown, without departing from the spirit and scope of my invention. Other forms of spring might be employed, as well as the adjusting means therefor; the spring might be rearranged in its relation to the rigid arm of the holder and the same result obtained; but all such modifications, I consider merely unimportant variations of form and still within the scope of my invention.

Having, therefore, described my invention, what I claim as new and desire to protect by Letters Patent, is—

1. In a sound reproducer, a stylus bar mounted to oscillate on an axis transverse thereto, a spring connected to said bar, and means for exerting force in a direction away from and in the plane of the axis of oscillation transverse to said bar to tension said spring.

2. In a sound reproducer, a stylus bar, bearings therefor whereby said bar is mounted to oscillate on an axis transverse thereto, a spring rigidly connected with said bar and means for exerting force in a direction away from and in the plane of the axis of oscillation transverse to said bar, to produce a tension on said spring and to hold the bar in engagement with said bearings.

3. In a sound reproducer, a stylus bar or lever fulcrumed on centers, a spring rigidly connected with said bar and means for exerting force in a direction away from and in the plane of the axis of the centers, transverse to said bar, to produce a pressure upon said centers and a tension upon said spring.

4. In a sound reproducer, a stylus bar mounted to oscillate on an anti-friction bearing, a spring rigidly connected to said stylus bar and extending transversely therefrom in the plane of the axis of oscillation thereof, and means for exerting a force upon said spring in a direction away from said bar to hold said bar upon said bearing.

5. In a sound reproducer, the combination with the diaphragm, of a stylus bar phonetically connected to said diaphragm and mounted to oscillate upon an anti-friction bearing, a spring connected to said stylus bar and a yielding lug connected to said spring for holding said bar in engagement with said bearing, said spring being substantially in a plane transverse to said bar at its axis of oscillation.

6. In a sound reproducer, the combination with the diaphragm of a stylus bar mounted to oscillate upon centers, a spring connected to said bar, a yielding lug for holding said bar on its centers, said spring being substantially in the plane of the axes of said centers, said lug and spring being adjustably connected to vary the tension exerted upon said spring.

7. In a sound box, an L-shaped stylus holder mounted to oscillate, one arm of said holder forming a spring and means for producing a tension upon said spring.

8. In a sound reproducer, a stylus bar mounted to oscillate upon pivot bearings, a spring extending substantially at right angles to said bar and rigidly connected thereto and means for exerting a force away from and in the plane of the axis of oscillation, to produce a tension upon said spring and to hold the bar in engagement therewith.

9. In a sound recording and reproducing machine, a stylus bar, a spring for regulating the freedom of movement of the stylus bar, said spring being reduced in cross section for a portion of its length, and a nut for tensioning the spring, said nut having a bearing upon the casing of the sound box.

10. In a sound recording and reproducing machine, a stylus bar, a spring integral with said bar and extending substantially perpendicular thereto, for regulating the freedom of movement of the stylus bar, said spring being reduced in cross section for a portion of its length, and a nut for tensioning the spring, said nut having a bearing upon the casing of the sound box.

11. In a sound reproducer, a stylus bar mounted to oscillate on an axis transverse thereto, a projection extending at right angles to said bar, a yielding lug adapted to engage the end of said projection and means for adjusting the relation between said lug and said projection.

12. In a sound reproducer, a stylus bar mounted to oscillate on an axis transverse thereto, a projection extending at right angles to said bar, a yielding U-shaped lug adapted to engage the end of said projection and means for adjusting the relation between said lug and said projection.

13. A sound box comprising a casing provided with a recess, a cover therefor extended to enter said recess, a diaphragm carried by said casing, a stylus bar mounted to oscillate upon the cover extension, one end of said bar being phonetically connected to said diaphragm and the other end of said bar having means for holding a stylus, a spring

connected to the stylus bar at a point in the plane of its axis of oscillation, and a means bearing upon the cover extension for regulating the tension of said spring.

14. In a sound box machine, a recessed casing, a cover having an approximately U-shaped extension entering the recess, a rocking stylus bar mounted to oscillate upon the cover, a spring arm integral with the bar and projecting through apertures provided therefor in said U-shaped extension, and a nut engaging the projecting end of the spring arm.

15. In a sound box, the combination with a diaphragm, of a coating of sound insulating material applied to one or more of the opposing marginal edges thereof, said coating consisting of fibers loosely cemented in place.

16. In a sound reproducer, a stylus bar mounted to oscillate on an axis transverse thereto, a spring rigidly connected to said bar, and means for exerting force in a direction longitudinally of said spring in the plane of the axis of oscillation of said bar transverse to said stylus bar, to produce a tension on said spring.

17. In a talking machine, a stylus bar, a bearing upon which said bar is mounted, a spring connected transversely to said bar and caused to flex by the oscillation of said bar, and means acting longitudinally of said spring to hold said bar upon said bearing.

18. In a talking machine, a stylus bar, a bearing for said bar, a spring rigidly connected transversely to said bar, and means acting longitudinally of said spring to hold said bar on said bearing.

19. In a talking machine, a stylus bar, a bearing upon which said bar is mounted, a spring rigidly connected to said bar, and yielding means acting longitudinally of said spring to tension said spring to hold said bar on said bearing.

20. In a sound box, a casing having a body portion provided with a diaphragm chamber having an annular seat therein, a diaphragm supported by said seat, and a cover extending over the front face of said body member and having an annular bead integral therewith upon the inner face thereof to hold said diaphragm in place.

21. In a sound box, a casing having a body portion provided in the face thereof with a diaphragm chamber having an annular seat therein, a diaphragm supported by said seat, a cover extending over the front of said body member to hold said diaphragm in place, and fibers loosely cemented between said casing and said diaphragm.

22. In a sound box, the combination with a stylus bar, of a spring for tensioning said bar, said spring having a part thereof reduced in cross section, and means acting longitudinally of said spring for tensioning the same to influence the oscillation of said bar.

23. In a sound box, the combination with a diaphragm, of a seat therefor, and sound insulating fiber interposed between the diaphragm and its seat and loosely cemented in place.

24. In a sound box, the combination with a diaphragm, of a seat therefor and sound insulating material interposed between the diaphragm and its seat and loosely cemented in place.

25. In a sound box, the combination with a diaphragm, of a coating of sound insulating material loosely cemented thereto.

26. In a sound box, the combination with a diaphragm, of a coating of sound insulating fiber loosely cemented thereto.

27. In a sound box, the combination with a casing, of a cover therefor, a stylus bar mounted to oscillate upon said cover, and means extending through said cover to hold said bar in place.

28. In a sound box, the combination with a casing, of a stylus bar mounted upon the outside of said casing, and means extending longitudinally through said casing to hold said bar in place.

29. In a sound box, the combination with a casing, of a stylus bar mounted on the outside of said casing, and means extending through said casing and transversely of said bar for holding said bar in place.

30. In a sound box, the combination with a casing, of a cover therefor provided with an opening and with bearings upon opposite sides of said opening on the front of said cover, a stylus bar engaging said bearings, and means extending through said opening to hold said bar in place.

31. In a talking machine, a stylus bar mounted to oscillate, and a spring connected to said bar and extending transversely thereof and caused to flex by the oscillation thereof to influence said oscillation.

32. In a talking machine, a stylus bar mounted to oscillate, a spring connected to said bar and caused to flex by the oscillation thereof, and yielding means to tension said spring.

33. In a sound box, the combination with a stylus bar, of a mounting therefor, an arm rigidly connected to said bar, and yielding means surrounding said arm to hold said bar upon its mounting.

34. In a talking machine, a stylus bar mounted to oscillate, and a spring rigidly connected transversely to said bar, and caused to flex thereby for influencing the oscillation thereof.

35. In a talking machine, a stylus bar mounted to oscillate, a flexible spring rig-

idly connected transversely to said bar, and means acting longitudinally of said spring to tension the same.

36. In a sound box, the combination with a casing, of a diaphragm mounted therein, and a cover for said casing having an annular bead integral therewith to hold said diaphragm in place.

37. In a sound box, the combination with a casing, of a diaphragm carried thereby, and a cover for said casing having a projection integral therewith to hold said diaphragm in place.

38. In a sound box, the combination with a stylus bar, of an arm rigidly connected to said bar, and extending transversely thereof, and yielding means surrounding said arm to hold said bar upon its mounting.

39. In a sound box, the combination with a stylus bar, of an arm connected to said bar and extending transversely thereof, and yielding means surrounding said arm to tension said arm.

40. In a sound box, a stylus bar mounted to oscillate, an arm connected to said bar and extending transversely thereof in the plane of the axis of oscillation thereof, and yielding means surrounding said arm to tension said arm.

41. In a sound box, the combination with a stylus bar, of an arm connected thereto, and extending substantially in the plane of the axis of oscillation of said bar, and yielding means surrounding said arm to tension said arm.

42. In a sound box the combination with a casing, of a stylus bar mounted thereon, and means inclosed by said casing for holding said bar upon its mounting.

43. In a sound box the combination with a casing, of a stylus bar mounted upon the face thereof, and means extending rearwardly from said bar to hold said bar upon its mounting.

44. In a sound box the combination with a casing, of a stylus bar mounted to oscillate upon the face thereof, and means extending rearwardly from said bar and substantially in a plane with the axis of oscillation thereof for holding said bar upon its mounting.

45. In a sound box the combination with a casing, of a cover therefor having a lug integral therewith, a stylus bar mounted to oscillate upon said cover, and means between said bar and said lug to hold said bar upon its mounting.

46. In a sound box the combination with a casing, of a cover therefor having a yielding lug projecting therefrom, a stylus bar mounted to oscillate upon said cover, and means between said bar and said lug to tension said bar.

47. In a sound box the combination with a casing, of a cover therefor provided with a rearwardly extending yielding lug and a stylus bar mounted upon said cover, and means between said stylus bar and said lug for tensioning said bar.

48. In a sound box the combination with a casing, of a cover therefor, a stylus bar mounted to oscillate on said cover, and a spring having a part thereof reduced in cross section between said bar and said cover for holding said bar upon its mounting.

49. In a sound box the combination with a casing, of a cover therefor having an apertured lug projecting therefrom, a stylus bar mounted to oscillate upon said cover, and means connected to said bar and extending through the aperture in said lug for holding said bar upon its mounting.

50. In a sound box the combination with a casing, of a cover therefor provided with a lug having an aperture, of a stylus bar mounted upon said cover, a spring rigidly connected to said bar and extending through said aperture, and means between said spring and said lug for adjusting the tension of said spring.

51. In a sound box the combination with a casing, of a cover therefor provided with a lug having an aperture, of a stylus bar mounted upon said cover, a spring rigidly connected to said bar and extending through said aperture, and a nut between said spring and said lug for adjusting the tension of said spring.

52. The combination with a stylus bar, of a mounting therefor, an arm connected to said bar and means surrounding said arm to hold said bar upon its mounting.

LOUIS P. VALIQUET.

Witnesses:
JOHN F. GRODER,
HARRY COBB KENNEDY.

Correction In Letters Patent No. 946,589.

It is hereby certified that in Letters Patent No. 946,589, granted January 18, 1910, upon the application of Louis P. Valiquet, of New York, N. Y., for an improvement in "Sound-Boxes for Talking-Machines," an error appears in the printed specification requiring correction as follows: Page 3, line 5, the word "machine" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of February, A. D., 1910

[SEAL.]

E. B. MOORE,
Commissioner of Patents.

idly connected transversely to said bar, and means acting longitudinally of said spring to tension the same.

36. In a sound box, the combination with a casing, of a diaphragm mounted therein, and a cover for said casing having an annular bead integral therewith to hold said diaphragm in place.

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40. In a sound box, a stylus bar mounted to oscillate, an arm connected to said bar and extending transversely thereof in the plane of the axis of oscillation thereof, and yielding means surrounding said arm to tension said arm.

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48. In a sound box the combination with a casing, of a cover therefor, a stylus bar mounted to oscillate on said cover, and a spring having a part thereof reduced in cross section between said bar and said cover for holding said bar upon its mounting.

49. In a sound box the combination with a casing, of a cover therefor having an apertured lug projecting therefrom, a stylus bar mounted to oscillate upon said cover, and means connected to said bar and extending through the aperture in said lug for holding said bar upon its mounting.

50. In a sound box the combination with a casing, of a cover therefor provided with a lug having an aperture, of a stylus bar mounted upon said cover, a spring rigidly connected to said bar and extending through said aperture, and means between said spring and said lug for adjusting the tension of said spring.

51. In a sound box the combination with a casing, of a cover therefor provided with a lug having an aperture, of a stylus bar mounted upon said cover, a spring rigidly connected to said bar and extending through said aperture, and a nut between said spring and said lug for adjusting the tension of said spring.

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