

No. 855,736.

PATENTED JUNE 4, 1907.

L. P. VALIQUET.
SOUND BOX FOR TALKING MACHINES.
APPLICATION FILED JAN. 12, 1904.

Fig1.

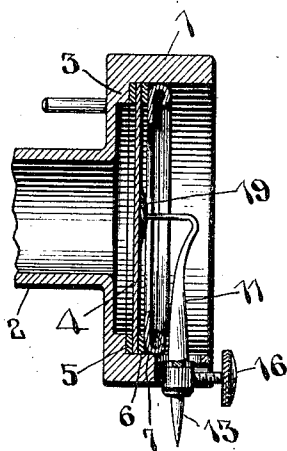


Fig2.

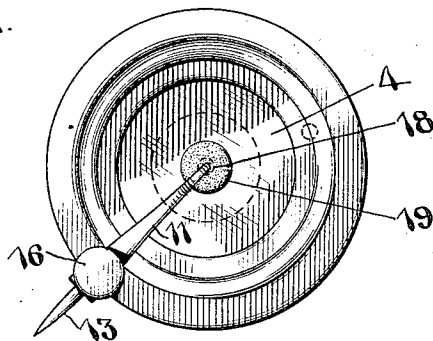


Fig3.

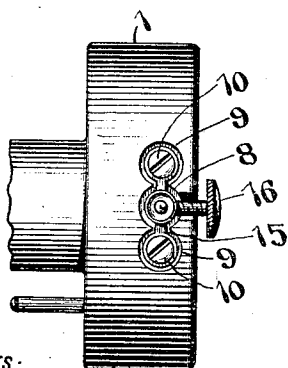
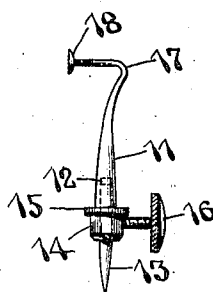


Fig4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS P. VALIQUET, OF NEW YORK, N. Y., ASSIGNOR TO THE VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW YORK.

SOUND-BOX FOR TALKING-MACHINES.

No. 855,736.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 12, 1904. Serial No. 188,805.

To all whom it may concern:

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

The object of my invention is to provide such a construction in sound boxes that the stylus bar may be adjusted and formed so as to have the correct characteristics of elasticity, shape and size in relation to the diaphragm.

A further object of my invention is to provide such a stylus bar that the tendency to lateral movement of its end where it connects with the diaphragm is entirely obviated and the sound waves thereby discharge at in more exactly perpendicular direction upon the diaphragm of the sound box.

Briefly, my invention consists in providing a stylus bar, the end of which is bent inwardly to form the connection between the end of the stylus bar and the diaphragm, the parts being integral and capable of being filed or reduced so as to vary their size, shape and elasticity.

For a full, clear and exact description of my invention reference may be had to the accompanying specification and to the accompanying drawing forming part thereof, in which

Figure 1 is a vertical sectional view of a sound box, said section being taken substantially on a plane passing through the axis of the stylus bar; Fig. 2, a front elevation of the sound box; Fig. 3, a side view of the sound box on the side thereof through which the stylus bar projects, and Fig. 4, an elevation of the stylus bar detached from the sound box.

Referring to the drawing, the numeral 1 indicates the cylindrical casing of the sound box, and 2 the sound tube thereof. The interior of the casing is formed with the usual flange or seat 3 for holding the diaphragm 4 in position. The usual gaskets or other suitable material are placed each side of the diaphragm as indicated at 5 and 6. A ring 7 preferably of metal and slightly elastic is forced against the outer gasket 6 to hold the diaphragm in position. An opening 8 is provided in the cylindrical portion of the casing

1, and located adjacent thereto are recesses 9 which are adapted to receive the heads of the screws 10 for holding the fulcrum and stylus bar in position.

The stylus bar 11 consists of a tapering piece of steel or other suitable material having the usual recess 12 in its lower end for receiving the stylus or needle 13. The lower end of the said stylus bar 11 is provided with an enlarged portion in the nature of a flange against which the supporting spring yoke or fulcrum 15 is seated and through which passes the thumb-screw 16 for retaining the needle 13 within the end of the stylus bar. The inner reduced end of the stylus bar 11 is curved slightly outward and then inward at right angles to the axis of said stylus bar as indicated at 17. The inner end of the right angled portion is provided with enlarged head 18 which is secured against the diaphragm 4 by means of wax or other suitable material, as indicated at 19. The curved portion 17 of the stylus bar 11 is preferably of small radius and of the shape shown in Figs. 1 and 4, the shape shown being that most convenient for the adjustment and treatment of the stylus bar for balancing the same in relation to diaphragms of different peculiarities and characteristics.

It is well known in the manufacture of sound boxes that the mica usually employed for diaphragms comes in slightly different thicknesses which materially affects the quality and volume of the sound produced. A thick diaphragm would of course require a stylus bar of less elasticity, of more rigidity, and of heavier weight than would a diaphragm of a less thickness. It is therefore necessary to balance the stylus bar to correspond to the thickness of a particular diaphragm. This balancing may be easily accomplished in the present form of my invention by scraping or filing away the material about the curve and the portions adjacent thereto, of the stylus bar. This not only reduces the weight of the stylus bar at the point of the curve but also varies its elasticity and rigidity so that the said characteristics may be exactly and accurately produced to correspond with the diaphragm which has been inserted. In addition to the advantages of having the inner end of the stylus bar reduced and curved as described, the stylus bar is made resilient for a portion

of its length which allows the vibrations caused by the undulations of the groove of the sound record to be modified during their transmission to the diaphragm. This causes the sound produced by the diaphragm to be much softened and the harsh and undesirable vibrations are, therefore, eliminated.

The curve 17, in combination with the outward bend of the stylus bar proper, affords a much longer connection between the stylus bar and the diaphragm, thereby obviating the tendency of the diaphragm to be moved transversely, owing to the fact that the end of the stylus bar vibrates or oscillates in the arc of a circle. This longer connection also allows the part at right angles to the diaphragm to be made stiffer without sacrificing any features of the resiliency thereof.

By having the fulcrum spring or yoke located as shown in the drawings, that is, substantially in the plan of the axis of the stylus bar and by providing the inner end of the stylus bar with the shape shown, the oscillations of the stylus bar are made at almost exactly right angles to the plane of the diaphragm. This does away with any tendency of the end of the stylus bar to move laterally in the plane of the diaphragm, which in some instances with heavy vibrations is sufficient to loosen the connecting portion of the stylus bar from the diaphragm.

I do not wish to be limited to the exact details of form and arrangement of parts herein set forth for the same may be varied, to produce the functions and results set forth, in a degree commensurate with the claims herein-after made.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States, is:—

1. In a sound box for talking machines, the combination of a diaphragm and a stylus bar having a double or reversed curve and having its inner end brought into operative relation with said diaphragm.

2. In a sound box for talking machines, the combination with a diaphragm, of a stylus bar gradually tapered toward its inner end, and having a double or reversed curve, said inner end being adapted to be connected to the diaphragm.

3. In a sound box for talking machines, a stylus bar which is gradually tapered toward its inner end, said end being curved outwardly on an arc of comparatively large radius and then curved inwardly on an arc of comparatively small radius to connect with the diaphragm on a line at substantially right angles to the plane thereof.

4. In a sound box for talking machines, the combination of a diaphragm and a stylus bar which is reduced in diameter toward its inner end, said reduced portion being bent out of the direct line first away from and then toward the point where it is connected

with the diaphragm to increase its length in relation to the length of the radius of the sound box.

5. In a sound box for talking machines, a stylus bar having a reduced inner end, said end being curved outwardly, and then inwardly to be attached to said diaphragm and to form a resilient or yielding connection therefor.

6. In a sound box for talking machines, a stylus bar having a gradually reduced inner end which is adapted to be attached to the diaphragm, said end being curved outwardly, and then inwardly in a direction substantially at right angles to the axis of the stylus bar to form a resilient connection.

7. In a sound box for talking machines, a stylus bar having a tapering inner end, said inner end being bent outwardly, and then inwardly in a curve of small radius to connect with the diaphragm to form a resilient connection therewith.

8. In a sound box for talking machines, a stylus bar which is tapered toward its inner end, said end being bent outwardly and then curved inwardly to connect with the diaphragm and to form a resilient connection therewith.

9. In a sound box for talking machines, a stylus bar having an integral flange thereon, a fulcrum for said stylus bar comprising a torsion spring having a central collar held frictionally in position against the said flange on the stylus bar, said spring having annular ends adapted to be attached to the sound box casing.

10. In a sound box for talking machines, a stylus bar having an integral flange, a fulcrum for said stylus bar comprising a torsion spring having portions substantially in the plane of the axis of said stylus bar having a central collar adapted to be held frictionally in position against the flange on the stylus bar and having annular ends adapted to be attached to the sound box casing.

11. In a sound box, the combination with a diaphragm and a support for a stylus bar, of a stylus bar having a double or reversed curve between its support and its point of connection with said diaphragm.

12. In a sound box, the combination with a diaphragm of a stylus bar having a double curve which extends first away from and then toward said diaphragm, the inner end of said stylus bar being adjacent said diaphragm.

13. In a sound box for talking machines the combination of a diaphragm and a stylus bar, said stylus bar having its inner end inclined outwardly away from the diaphragm, and then turned inwardly to be attached to said diaphragm, to form a resilient or yielding connection therefor.

14. In a sound box, a stylus bar having its inner extremity bent outwardly on a curve

of relatively large radius and bent inwardly on a curve of relatively small radius.

15. In a sound box, a stylus bar tapered toward its inner extremity, the said stylus
5 bar being bent outwardly on a curve of relatively large radius and being bent inwardly on a curve of relatively small radius.

In witness whereof I have hereunto set my hand this 8th day of January, A. D. 1904.

LOUIS P. VALIQUET.

Witnesses:

FRANK G. SWARTWOUT,
JOSEPH M. ZAREMBA.