

B. L. RINEHART.  
SOUND BOX FOR TALKING MACHINES.  
APPLICATION FILED DEC. 22, 1905.

1,013,314.

Patented Jan. 2, 1912.

Fig. 1.

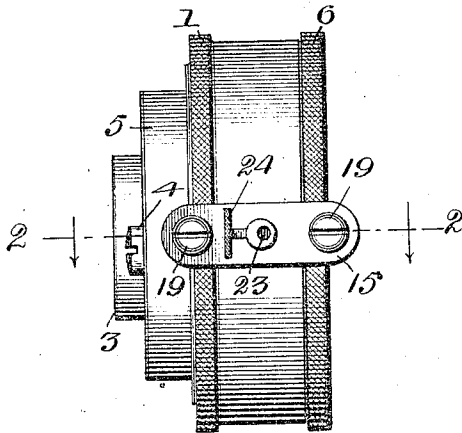


Fig. 2.

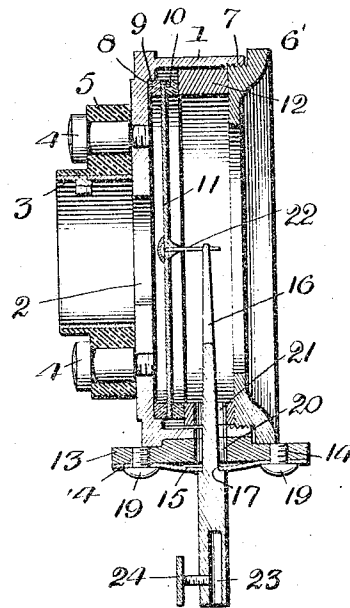


Fig. 3.

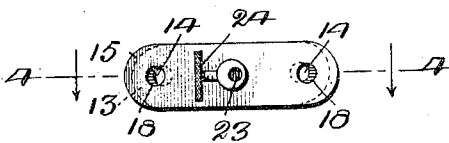
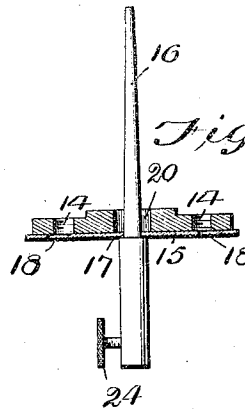


Fig. 4.



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# UNITED STATES PATENT OFFICE.

BENTLEY L. RINEHART, OF CAMDEN, NEW JERSEY, ASSIGNOR TO VICTOR TALKING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

## SOUND-BOX FOR TALKING-MACHINES.

1,013,314.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed December 22, 1905. Serial No. 292,918.

*To all whom it may concern:*

Be it known that I, BENTLEY L. RINEHART, a citizen of the United States, and a resident of the city of Camden, county of Camden, State of New Jersey, have invented certain new and useful Improvements in Sound-Boxes for Talking-Machines, of which the following is a full, clear, and exact description.

My invention relates to certain improvements in sound boxes for talking machines and particularly to the yielding support on which the stylus bar is mounted and to the means for adjusting and holding the diaphragm.

The object of this invention is to provide a sound box in which the quality and volume of the tone of reproduction is rendered clearer, more distinct and more natural than it has heretofore been possible to do.

A further object of my invention is to dispose a simple spring support for a stylus bar in such a manner that the quality of the reproduction is greatly improved.

A further object of my invention is to provide a construction in which the diaphragm may be readily adjusted with respect to the stylus bar and, when adjusted, may be held between the elastic gaskets by a pressure which may be varied to secure the best results in the recording or reproducing of sound.

Briefly my invention consists in mounting the stylus bar on a flat spring which in turn is secured to a suitable supporting plate, the said spring between its points of support being buckled or slightly sprung away from the supporting plate and having its longitudinal axis perpendicular to the plane of the diaphragm and lying within the plane of the oscillation of the stylus bar.

In the accompanying drawings forming a part of this specification, Figure 1 shows a sound box having my improved stylus spring secured thereto; Fig. 2 is a longitudinal section of a sound box containing my invention, taken on the line 2—2 and Figs. 3 and 4 are detail views showing the stylus bar and its support detached from the sound box casing.

1 indicates a cylindrical casing of a sound box provided on the back side thereof with an opening 2, connected with the sound tube 3 secured to the back of said sound box by screws 4 passing through the elastic mount-

ing 5 on the outside of said sound tube. Into the front side of the cylindrical casing 1, the face plate 6 is secured by threads 7 within the casing and upon the outside of the body of the face plate. The outer flange 60 of the face plate is provided with a knurled surface 6' in order that the same may be rotated with facility.

8 indicates a seat, within the casing, for one of the elastic gaskets 9 and 10 between 65 which the diaphragm 11 is held.

12 indicates a follower or bushing which is adapted to engage the gasket 10 and the inner side of the face plate 6 when the face plate is screwed into the front side of the 70 casing.

On one side of the sound box, is secured, in any suitable manner, a supporting plate 13, provided with threaded holes 14.

15 indicates the supporting spring upon 75 which the stylus bar 16 is mounted, said spring consisting of a comparatively thin and narrow strip of any suitable spring metal provided in the middle and at the ends thereof with holes 17 and 18—18. The 80 distance between the holes 18—18 of the spring, is a little greater than the distance between the holes 14—14 of the support, so that when the spring is secured to the support by screws 19 passing through the holes 85 18 and into the threaded holes 14, the spring will be buckled or sprung away from the support. The stylus bar is held within the hole 17 of the spring in any suitable manner as by being tightly forced into the same 90 or soldered therein and the inner end of the stylus bar will project through the hole 20, of the casing, and 21, of the bushing or follower, to a position near the center of the diaphragm to which it is adapted to be 95 attached through the connection 22. The outer end of the stylus bar is provided with a socket 23 into which the stylus may be inserted and clamped by the set screw 24.

By reason of the above construction I am 100 enabled to apply a greater or lesser pressure to the edges of the diaphragm in order to secure the best results in recording and reproducing sound, by merely rotating the 105 face plate to move the same toward or away from the diaphragm, and to mount the stylus bar on a yielding support in such a manner that the plane of the oscillation of the stylus bar will pass through the axis of the spring, the axis of the spring being also 110

perpendicular to the plane of the diaphragm. This relation between the spring and the stylus bar results in a pure and loud reproduction of the sound and affords  
 5 a simple and effective way of mounting the stylus bar. Moreover, the pressure applied to the edge of the diaphragm may be easily adjusted or varied to suit varying conditions.

10 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 stylus bar, a spring support therefor and a spring supporting  
 15 plate, said spring and said plate having holes near the ends thereof, the distance between the holes in the spring being normally greater than that between the holes in the  
 20 plate, and means for securing said spring and said plate with the holes in the spring registering with the holes in the plate.

2. In a sound box for talking machines, the combination with a stylus bar, of a  
 25 spring supporting plate extending parallel with the axis of said sound box, and a recurved spring secured at its ends to said supporting plate and capable of being variably buckled centrally away from its line  
 30 of support and having its longitudinal axis perpendicular to the plane of the diaphragm for supporting said stylus bar.

3. In a sound box for talking machines, the combination with a diaphragm, of a  
 35 stylus bar, a buckled spring upon which said bar is mounted, the longitudinal axis of the said spring being perpendicular to the plane of the diaphragm, and a support for said spring, said spring being buckled  
 40 centrally away from said support and adjustable to vary its tensibility.

4. In a sound box for talking machines the combination with a stylus bar, of a  
 45 spring supporting plate extending parallel to the axis of the sound box, and a recurved spring secured at its ends to said supporting plate and capable of being variably buckled centrally away from its line of support, and having its longitudinal axis perpendicular  
 50 to the plane of the diaphragm, for supporting the stylus bar.

5. In a sound box for talking machines, the combination of a stylus bar, a spring

support therefor, a spring supporting plate, said spring being longer than said plate, 51  
 and means for securing the spring to the plate with their ends in alinement, the said spring being buckled centrally away from the line between the points at which it is  
 60 secured to said plate, said securing means being adjustable to vary the tensibility of said spring.

6. In a sound box, the combination with a stylus, of a spring support therefor, a  
 spring supporting plate, the ends of said 65  
 spring support being secured to the plate, and the central portion of said spring support being sprung away from the said plate, and means distinct from said plate arranged  
 to secure said spring thereto. 70

7. In a sound box, the combination with a stylus bar, of a spring support therefor, a  
 spring supporting plate having a flat surface, the ends of said spring support being  
 75 secured to the said flat surface, and the central portion of said spring support being sprung away from said plate, and adjustable means arranged to secure said spring to said plate.

8. In a sound box, the combination with a 80  
 stylus bar, of a spring support therefor extending radially in opposite directions from said bar, a spring supporting plate provided with an aperture, said bar extending  
 85 through said aperture, the ends of said spring support having apertures registerable with apertures in said plate, when the central portion of said spring support is bowed away from said plate.

9. In a sound box for talking machines, 90  
 the combination with a stylus bar, of a spring supporting plate extending parallel with the axis of said sound box, a recurved spring secured at its ends to said supporting  
 95 plate and buckled centrally away from its line of support, and means arranged to secure said spring to said supporting plate, and adjustable to variably buckle said spring with respect to its line of support.

In witness whereof I have hereunto set  
 my hand this nineteenth day of December,  
 A. D., 1905.

BENTLEY L. RINEHART.

Witnesses:

WM. EARLY,  
 CHAS. K. BENNETT.