H. NIES.

GRAPHOPHONE SOUND BOX.

APPLICATION FILED MAR. 24, 1908.

899,464. Patented Sept. 22, 1908.

Fig. 1.

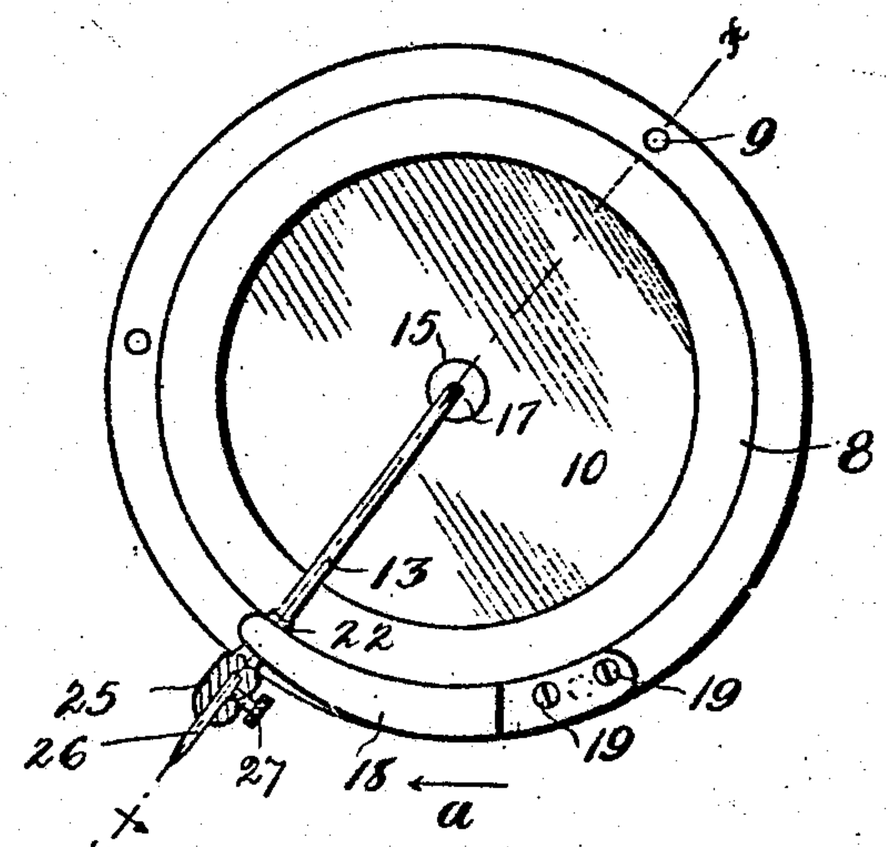


Fig. 2.

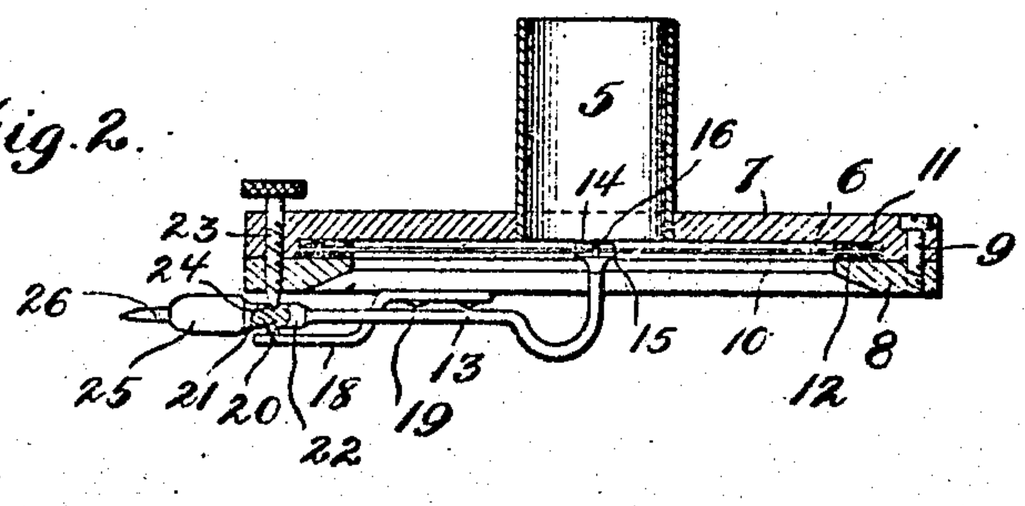
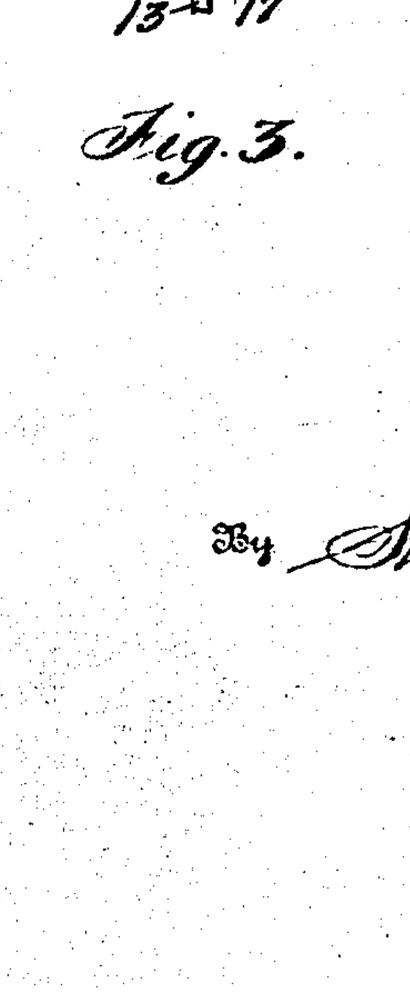


Fig. 3.



Witnesses
W. L. Connor,
A. Murray.

Inventor
Harry Nies.

By Shepherd & Campbell
Attorneys

UNITED STATES PATENT OFFICE.

HARRY NIES, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO JAMES H. CORRIGAN, OF BALTIMORE, MARYLAND.

GRAPHOPHONE SOUND-BOX.

No. 899,464. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed March 24, 1908. Serial No. 422,902.

To all whom it may concern:

Be it known that I, HARRY NIES, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Graphophone Sound-Boxes, of which the following is a specification.

My invention relates to sound boxes for graphophones and particularly to means for controlling the degree of vibration of the stylus bar, whereby the pitch of the composition being played may be varied at will. By the use of this invention, a graphophone record is given a widely increased range. It is a well known fact that the key of a piece played upon a graphophone varies with the speed of the record. I accomplish this purpose of varying the key without varying the speed of the record, by the means hereinafter set forth.

A further object of the invention is to so construct the parts that the weight of the sound box will be decreased and a neat and ornamental structure provided.

A further object of the invention is the provision of improved means for securing the inner end of the stylus bar to the diaphragm without the use of glue or wax.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:—

In the accompanying drawing Figure 1 is a side elevation of a graphophone sound box constructed in accordance with the invention. Fig. 2 is a sectional view upon line *x x* of Fig. 1 and looking in the direction indicated by the arrows and Fig. 3 is a detail view of the connection between the stylus bar and the diaphragm.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numeral 5 designates the usual tubular member adapted to be secured to the horn of the graphophone (not shown). A shallow recess 6 is formed in the face of a plate 7 and the tubular member 5 is secured to this plate. A ring 8 is adapted to be clamped firmly against the outer edge of the plate 7 by screws 9. The outer edge of the diaphragm 10 lies between two packing rings 11 and 12, these packing rings being preferably of blotting paper which I find retains its life or elasticity indefinitely. Upon the contrary, rubber or like resilient packing rings lose their elasticity in the course of time. In securing the inner end of the stylus bar 13 to the diaphragm, I first secure the metallic washers 14 and 15 to the center of the diaphragm by a rivet 16. I then solder the inner end of the stylus bar to the outer washer as is best indicated at 17 in Fig. 3. Thus it is unnecessary to use either wax or glue to secure the stylus bar to the diaphragm. A spring tongue 18 is secured by screws 19 to the ring 8. The free end of this spring tongue carries a point 20 which enters a recess 21 formed in one side of an enlarged portion 22 of the stylus bar. A set screw 23 is threaded into the plate 7 and ring 8 and has a pointed end which enters a recess 24 formed in the opposite side of this enlarged portion. A recessed head 25 formed upon the outer end of the stylus bar is adapted to receive the usual pin 26 beneath which the record travels. A set screw 27 provides means for holding the pin 26 in position.

The operation of the device is as follows:— The direction of rotation of the record is that indicated by the arrow —*a*—. The enlarged shoulder 22 of the stylus bar being engaged by the point 20 and the screw 23, said stylus bar is caused to maintain the position indicated in Fig. 1. It will be seen, however, that by screwing up or unscrewing the screw 23, the stylus bar will be more or less rigidly bound between the pointed end of this screw and the spring tongue 18, and that consequently its degree of vibration may be controlled while the graphophone is running and without removing the horn. I have found in actual practice that this control of the vibration of the stylus bar enables me to produce any desired modification of the pitch of the record. From the foregoing description it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purpose for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth but includes within its purview such changes as may be made within the scope of the appended claims.

Having described my invention, what I claim is:—

1. In a graphophone sound box the combination with a body portion of a diaphragm, means for clamping said diaphragm within

said body portion, a stylus bar, means for connecting the inner end of the stylus bar to said diaphragm, a spring tongue secured to the body portion and having a free outer end which lies outside of the stylus bar, a member carried by said spring tongue and adapted to engage one side of an enlarged portion of said stylus bar and a set screw threaded into the body portion and adapted to engage the other side of said enlarged portion of the stylus bar.

2. In a graphophone sound box the combination with a body portion, of a diaphragm, means for clamping said diaphragm within said body portion, a stylus bar, means for securing the inner end of said stylus bar to said diaphragm, a spring tongue secured to said body portion having a free outer end which engages one side of the stylus bar and a laterally movable and manually operable member which engages the opposite side of said stylus bar to bind said stylus bar between itself and the free end of the spring tongue to thereby control the degree of vibration of said stylus bar.

3. In a graphophone sound box, the combination with a body portion, of a diaphragm, a clamping ring adapted to clamp said diaphragm within said body portion, a stylus bar, means for connecting the inner end of the stylus bar to said diaphragm, a spring member comprising a base portion which is secured to the outer face of the clamping ring, and an off-set tongue member having a resilient free end which lies outside of the stylus bar, a member carried by said resilient free end of the spring tongue and adapted to engage one side of an enlarged portion of said stylus bar, and a manually operable set screw working in said body portion and clamping ring and adapted to engage the other side of said enlarged portion of the stylus bar to bind said stylus bar between itself and the resilient free end of the spring tongue.

4. In a graphophone sound box, the combination with a body portion, of a diaphragm, a clamping ring adapted to clamp said diaphragm within said body portion, a stylus bar, means for connecting the inner end of the stylus bar to said diaphragm, a spring member comprising a base portion which is secured to the front vertical face of the clamping ring and an off-set tongue member having a resilient free end which lies outside of the stylus bar, a member carried by said resilient free end of the spring tongue adapted to engage one side of an enlarged portion of the stylus bar, and a manually operable set screw working in said body portion and clamping ring and adapted to engage the inner side of said enlarged portion of the stylus bar to bind said stylus bar between itself and the resilient free end of the spring tongue.

In testimony whereof I affix my signature, in presence of two witnesses.

HARRY NIES.

Witnesses:

JAMES H. CORRIGAN,

THOMAS G. HULL.