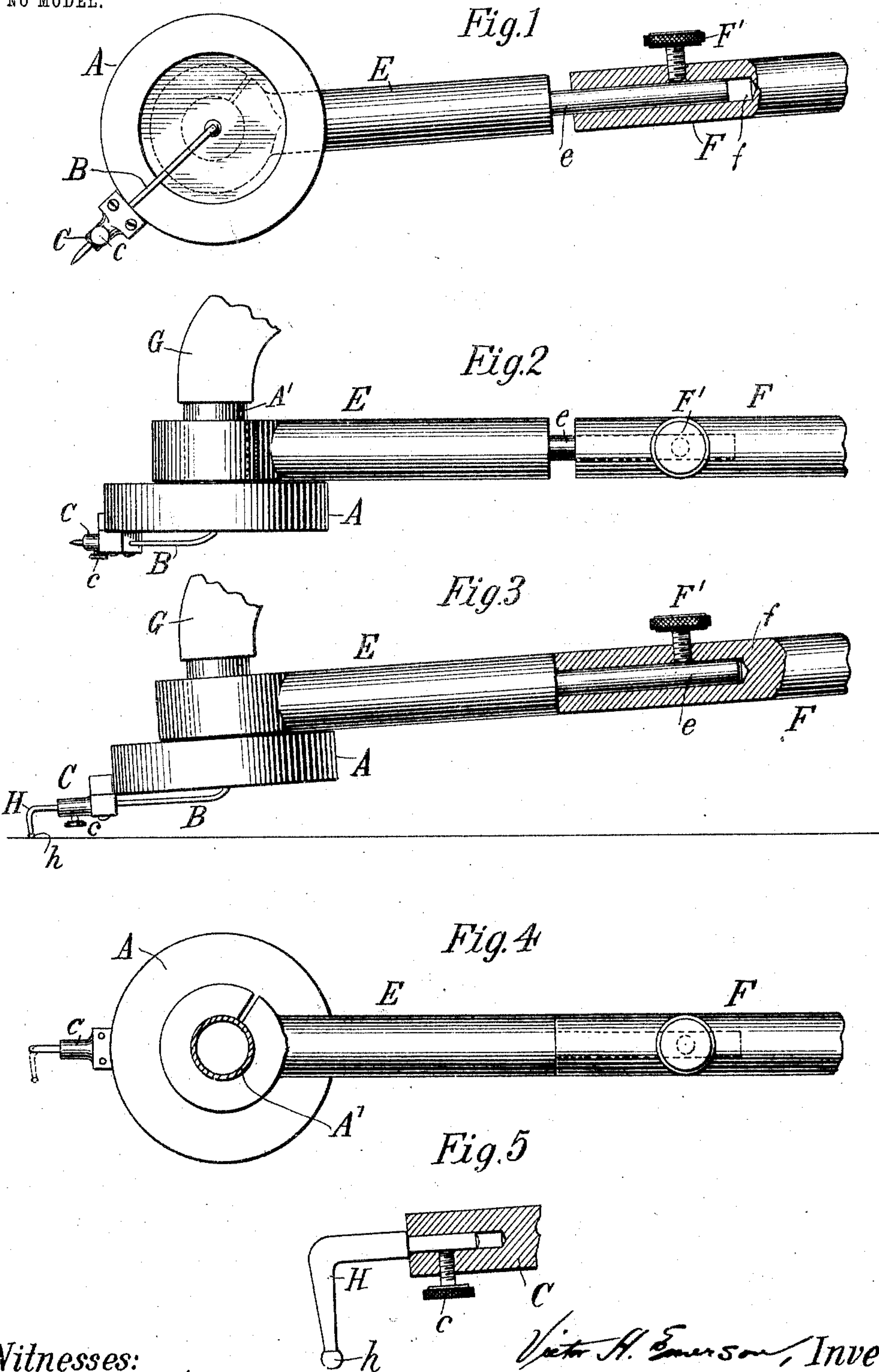


No. 777,615.

PATENTED DEC. 13, 1904.

V. H. EMERSON.  
 CONVERTIBLE SOUND BOX.  
 APPLICATION FILED AUG. 19, 1903.

NO MODEL.



Witnesses:  
 Raphaël Ketter  
 H. B. Perkan.

Victor H. Emerson, Inventor  
 Mauro Cameron Lewis,  
 by Attys.



# UNITED STATES PATENT OFFICE.

VICTOR H. EMERSON, OF NEWARK, NEW JERSEY, ASSIGNOR TO AMERICAN GRAPHOPHONE COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF WEST VIRGINIA.

## CONVERTIBLE SOUND-BOX.

SPECIFICATION forming part of Letters Patent No. 777,615, dated December 13, 1904.

Application filed August 19, 1903. Serial No. 170,089. (No model.)

*To all whom it may concern:*

Be it known that I, VICTOR H. EMERSON, of Newark, New Jersey, have invented a new and useful Convertible Sound-Box, which improvement is fully set forth in the following specification.

This invention relates to disk talking-machines in which the sound-box, with its diaphragm and reproducing-stylus, is carried by a swinging arm pivoted some distance away from the turn-table and is fed across the disk by the record-groove itself. The sound-records commonly employed with this type of machine contain the record-groove in the form of grooves of uniform depth containing lateral undulations corresponding to the sound-waves. The sound-box is arranged so that its diaphragm is at right angles to the disk—that is, vertical. Another form of sound-record contains the record in the form of a groove of varying depth, the irregularities consisting of vertical undulations corresponding to sound-waves. The first-mentioned records are conveniently spoken of as “zigzag” records. The other type I shall refer to as “up and down” or “vertical.”

The object of the present invention is to adapt a talking-machine for reproducing from records of either type.

The invention consists in providing means for supporting the sound-box interchangeably, so that its diaphragm may lie either practically parallel with the record-disk or at right angles thereto and in adding a small attachment in place of the ordinary needle.

The invention will be best understood by referring to the accompanying drawings, that illustrate one embodiment thereof.

Figure 1 is a side view of a preferred form of apparatus, partly in section, showing the sound-box arranged for reproducing from zigzag records. Fig. 2 is a top view of the same. Fig. 3 is a side view, partly in section, showing the apparatus arranged for reproducing from up-and-down records; and Fig. 4 is a top view of the same. Fig. 5 is a detail.

A represents the sound-box of any ordinary or preferred construction, having the stylus-bar B fulcrumed thereon and carrying at its free end the barrel C, with set-screw *c*, for engaging the ordinary needle-point D. The swinging arm is made in two sections E and F. Section E has the usual split ring for engaging the stem A' of the sound-box, which latter carries the usual elbow G. Section F has a cylindrical seat *f* for engaging a cylindrical stem *e*, projecting from section E. A set-screw F' holds the section E in any desired adjustment.

H represents an L-shaped or angular device carrying a reproducing-stylus *h* at one end and adapted to be inserted in the barrel C in place of the needle. Figs. 1 and 2 represent the arrangement in reproducing from the present well-known form of zigzag records. The set-screw F' holds the sections E and F rigidly, and the device operates in the well-known manner.

To obtain the adjustment shown by Figs. 3 and 4, first loosen the set-screw *c* and remove the needle, then insert attachment H so that the stylus-point *h* will extend in the opposite direction from stem A', and clamp it thus with set-screw *c*; second, rotate the sound-box in the split ring of section E so that it will occupy the position shown in Fig. 4 instead of the position indicated by the dotted lines H'; third, loosen set-screw F', turn section E on its axis through an angle of ninety degrees, then push it into its socket *f* until stylus-point *h* has the proper position, and then clamp set-screw F'. In this adjustment the vertical undulations of the record-groove impart vertical vibrations to the stylus *h*, which are then translated into corresponding vertical vibrations of the diaphragm.

Changes may be made in the construction and details of the parts without departing from the spirit of my invention.

Having thus fully described a preferred manner of carrying out my invention, I claim—

1. In a talking-machine, a sound-box therefor having a barrel for receiving the needle,

a swinging arm for carrying said sound-box and made in two sections for adjusting said sound-box, and an angular stylus attachment adapted to be inserted in said barrel.

5 2. The combination with a sound-box, of an L-shaped stylus attachment removably secured thereto, and means for holding said sound-box either horizontally or vertically.

10 3. The combination of a sound-box and means for supporting it interchangeably with its diaphragm either parallel to or at right angles to the surface of the sound-record.

15 4. The combination with a sound-box, of means for supporting it interchangeably with its face either parallel to or at right angles to the record-disk, and a detachable L-shaped

device carrying the reproducer-point and secured in place of the ordinary needle.

5. The combination with a sound-box and its diaphragm, of supporting means therefor 20 that holds said diaphragm in operative position for a laterally-vibrating stylus, said means being adjustable to present said diaphragm in another position operative for a vertically-vibrating stylus. 25

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

VICTOR H. EMERSON.

Witnesses:

C. A. L. MASSIE,  
O. R. JUDD.