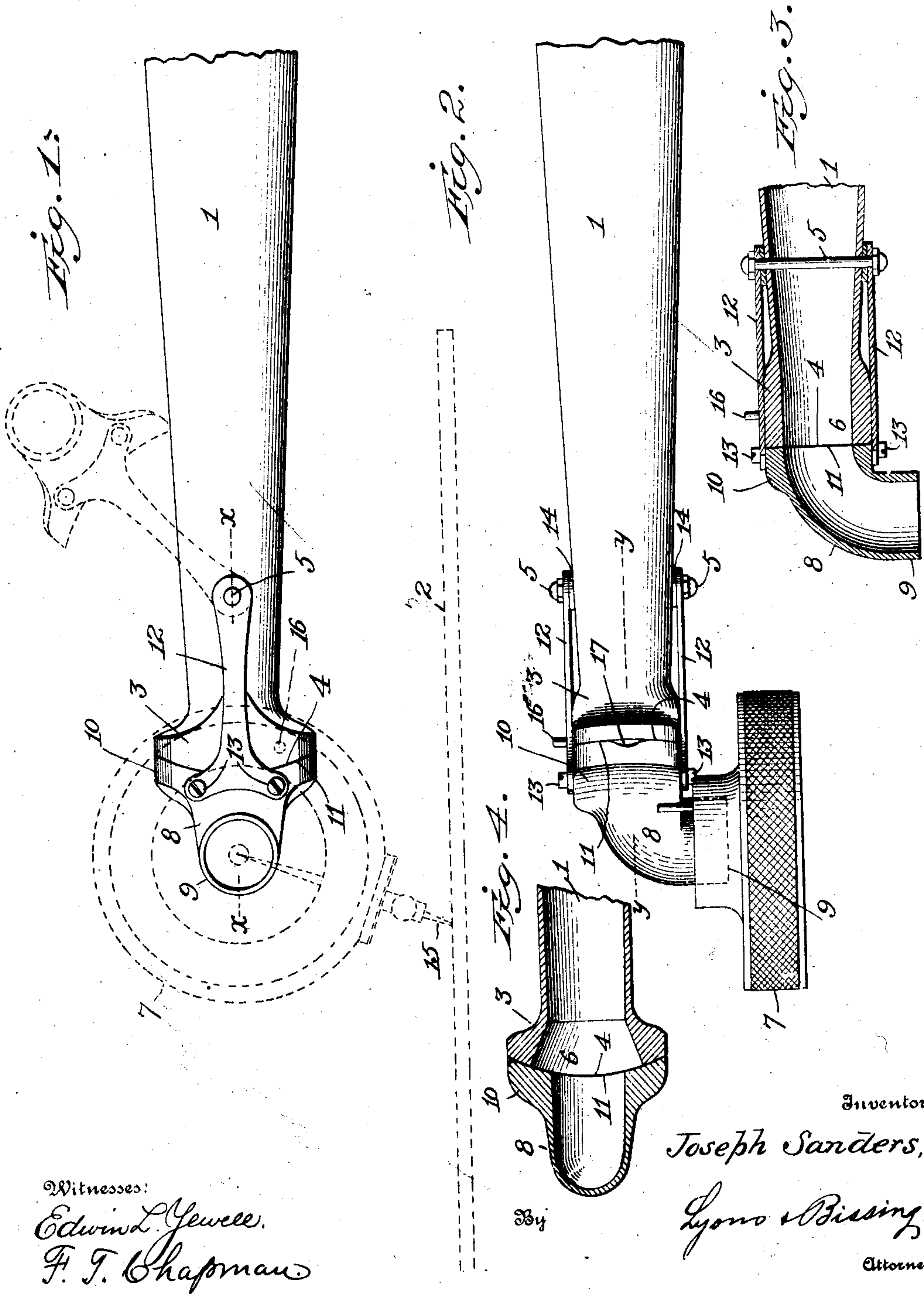


No. 834,326.

PATENTED OCT. 30, 1906.

J. SANDERS.
GRAMOPHONE.

APPLICATION FILED AUG. 4, 1905.



UNITED STATES PATENT OFFICE.

JOSEPH SANDERS, OF WASHINGTON, DISTRICT OF COLUMBIA.

GRAMOPHONE.

No. 834,326.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed August 4, 1905. Serial No. 272,737.

To all whom it may concern:

Be it known that I, JOSEPH SANDERS, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Gramophones, of which the following is a specification.

This invention has reference to improvements in gramophones of the type wherein a tapering amplifying-horn or a section thereof is mounted to swing over a record-tablet only in a plane parallel thereto; and the object of my invention is to produce a means for mounting the sound-box whereby it may be carried by said tapering horn or horn-section and have freedom of movement in a plane at right angles to the plane of movement of the id horn.

The invention consists in providing a quadrantal neck for the sound-box, which neck is pivotally yoked to the taper section, so as to move in a curved path past the smaller or free end of said horn-section to bring the stylus of the sound-box in engagement with a sound-record groove or to bring the sound-box over onto the horn-section in position for the insertion or removal of a stylus. To insure a sound-proof joint between the quadrantal neck or sound-box carrier and the tapering horn-section, the meeting faces are curved on an arc the center of which is the pivot of the yoke joining the sound-box carrier to the horn-section. All this will appear from the following detail description, in which reference is made to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation of a portion of a taper horn-section and the quadrantal neck or sound-box carrier with the sound-box and a disk record-tablet shown in dotted lines. Fig. 2 is a plan view of the structure shown in Fig. 1 with the sound-box shown in full lines and the record-disk omitted. Fig. 3 is a section on the line *x x* of Fig. 1, and Fig. 4 is a section on the line *y y* of Fig. 2.

The hollow taper arm or horn-section 1 is understood to be so supported as to swing over the record-tablet 2 in a plane parallel thereto only, as is now common in the art. The free or small end of this arm is composed of a head 3, which is here shown as formed in one piece with the horn-section, but which may be soldered or brazed to it, and it is of larger outer diameter than the adjacent por-

tion of the taper arm. The end face 4 of this head is curved outwardly on an arc the axis of which is coincident with that of a bolt or pin 5, passing horizontally and diametrically through the taper arm a short distance back of its free end. The bore of the taper arm is continued through the head 3 and terminates at the curved face 4 in a mouth 6, which flares at top and bottom, as shown in Fig. 4, for a purpose that will presently appear. The taper arm 1 carries a sound-box 7 of any approved type through the intermediary of a quadrantal hollow neck 8.

The neck 8 has one end 9 of such size as to fit into and carry the sound-box, and the other end 10 is expanded to match in size the head 3. The end 10 of the neck 8 is held in juxtaposition to the head 3, so that its face 11, which is curved on the same arc as the face 4 of the said head 3, is in sliding contact, or nearly so, with the said face 4. This is done by means of two yoke-arms 12 12, securely fastened at one end to the end 10 of the neck 8, as by the screws 13, and at the other end journaled to the taper arm 1 by the bolt or pin 5, being pivotally confined between the heads of said bolt and felt or other non-resonant washers 14 interposed between the yoke and the walls of the taper arm. This construction permits the hollow quadrantal neck (and sound-box carried thereby) to be swung around the bolt 5 as a pivot through a curved path in a vertical plane, so that the sound-box style 15 may be brought into position to engage a record-groove, (in which case the end 10 of the neck 8 covers the free end of the taper arm,) or the neck and sound-box may be swung upward, over, and downward upon the top of the taper arm, as shown in dotted lines, Fig. 1, in which latter position a worn style may be readily removed from the sound-box or a new style inserted.

The passage through the hollow neck 8 may be substantially round and of the same diameter as the lateral diameter of the mouth of the taper arm. It therefore communicates with a part only of the mouth 6 in a vertical direction. This permits the neck to be moved vertically over the mouth of the taper arm for a limited distance without in any way restricting the free passage of the sound from the sound-box to the taper arm, and thereby provides for the vertical movements of the sound-box due to mechanical

inaccuracies found in all record-tablets and sound-reproducing machines, and also provides for the use of record-tablets of various thickness.

5 In order to limit the downward movement of the neck and sound-box, a stop-pin 16 may be provided on the head 3 below and in the path of one of the yoke-arms 12.

10 In order to protect the taper arm from being marred by the contact of the edge of the end 10 of the neck 8, the said edge is slightly indented, as indicated at 17, Fig. 2.

Accuracy of fit between the two faces 4 and 11 is not essential, since they may even
15 be separated slightly without interfering appreciably with the transmission of the sound from the neck to the taper arm, and of course these two faces may be curved laterally as well as vertically.

20 Instead of using my invention in connection with a sound-amplifying horn of the taper-arm type a straight horn may be used, in which case it will be mounted to move across the record-tablet only in a plane parallel thereto.

25 Having described my invention, what I claim is—

1. In a sound-reproducing machine, the combination with a tapering sound-amplifier
30 constrained to move over a record-tablet in a plane parallel thereto and terminating at its smaller end in a mouth in line with the bore of said amplifier, of a sound-box support carried by said amplifier and movable across
35 the said mouth thereof into and out of communication therewith, substantially as described.

2. In a sound-reproducing machine, the combination with a tapering sound-amplifier
40 constrained to move over a record-tablet in a plane parallel thereto and terminating at its smaller end in a mouth in line with the bore of said amplifier, of a quadrantal neck, for supporting a sound-box, carried by said
45 amplifier and movable across the said mouth

into and out of communication therewith, substantially as described.

3. In a sound-reproducing machine the combination with a sound-amplifier having a flaring mouth at its smaller end, and a sound-
50 box carrier movable across said flaring mouth in one plane only and having a sound-conveying passage through it of less area than that of the flaring mouth, substantially as described.

4. In a sound-reproducing machine, the combination with a sound-amplifier, of a sound-box carrier pivoted to the sound-amplifier and movable across the same in a curved path, the meeting faces of the carrier
60 and amplifier being curved on an arc described about the axis of the carrier, substantially as described.

5. In a sound-reproducing machine, the combination with a sound-amplifier formed
65 with a curved end face, a sound-box carrier having a correspondingly-curved face, and yoke-arms fast to the sound-box carrier and pivotally connected to the amplifier, whereby the sound-box carrier is constrained to
70 move in a curved path over the end face of the amplifier, substantially as described.

6. In a sound-reproducing machine the combination with a tapering sound-amplifier
75 movable in one plane only over a sound-record, and having its smaller end formed with a curved face and flaring mouth, of a sound-box carrier composed of a hollow, quadrantal neck having a curved face movable over the curved face of the amplifier contiguous there-
80 to, and yoke-arms fast on the neck and pivotally connected to the amplifier, substantially as described.

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

JOSEPH SANDERS.

Witnesses:

ABRAHAM KAUFMAN,
HELEN FRANZ.