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No. 793,627.

PATENTED JUNE 27, 1905.

F. MYERS.  
PHONOGRAPH

APPLICATION FILED DEC. 15, 1903.

2 SHEETS—SHEET 1.

FIG. 1.

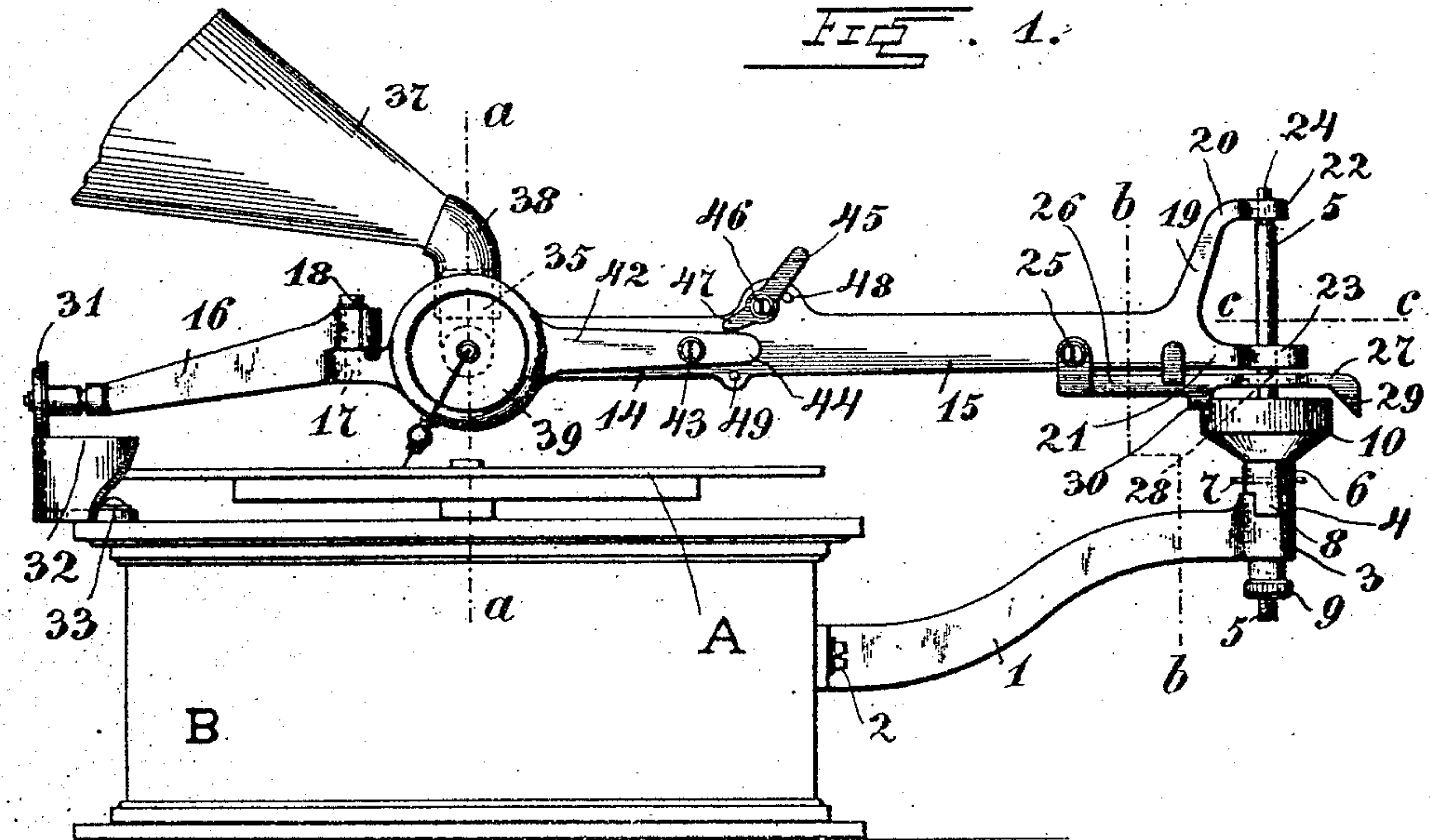
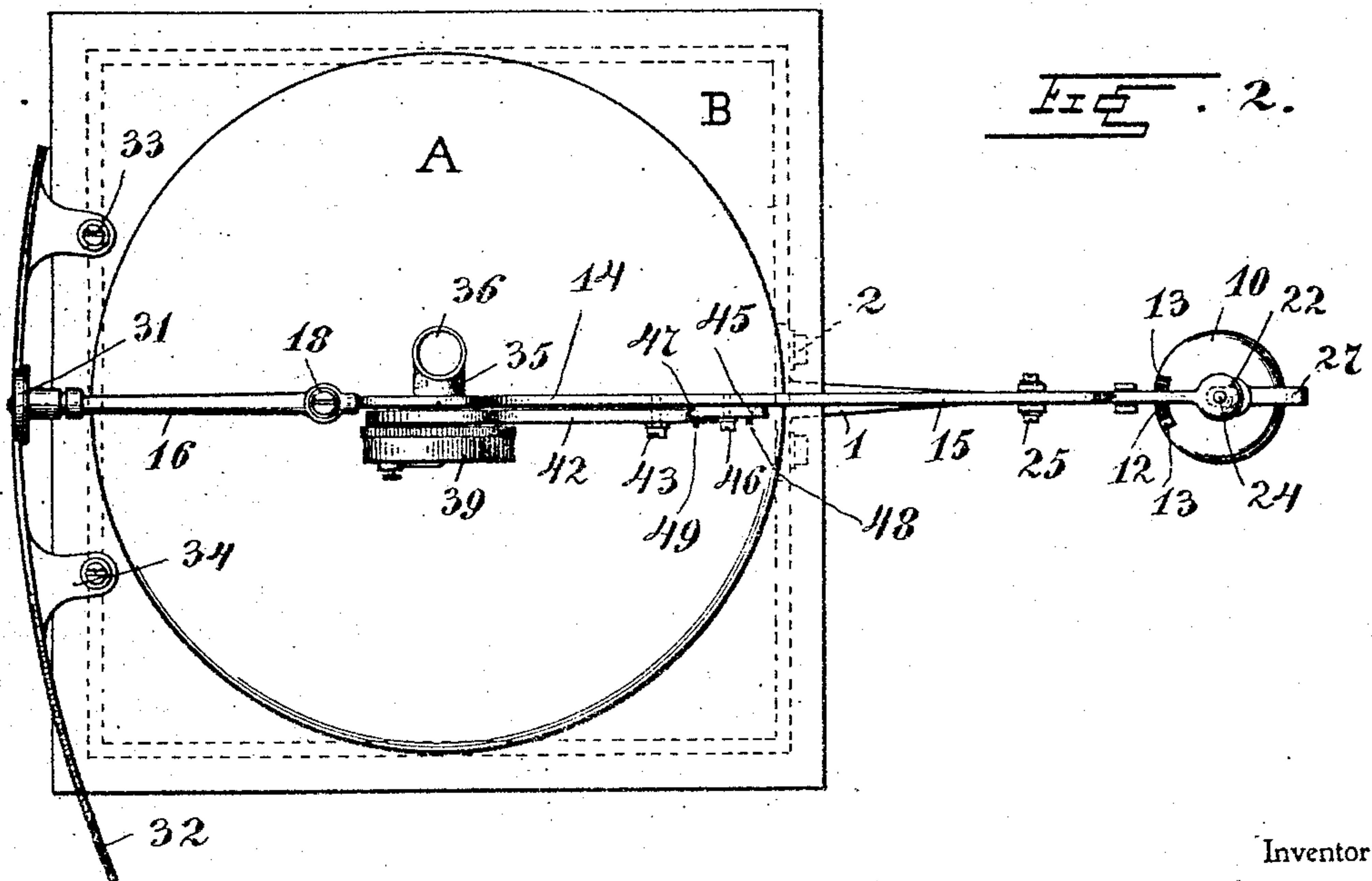


FIG. 2.



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Witnesses

V. Munson

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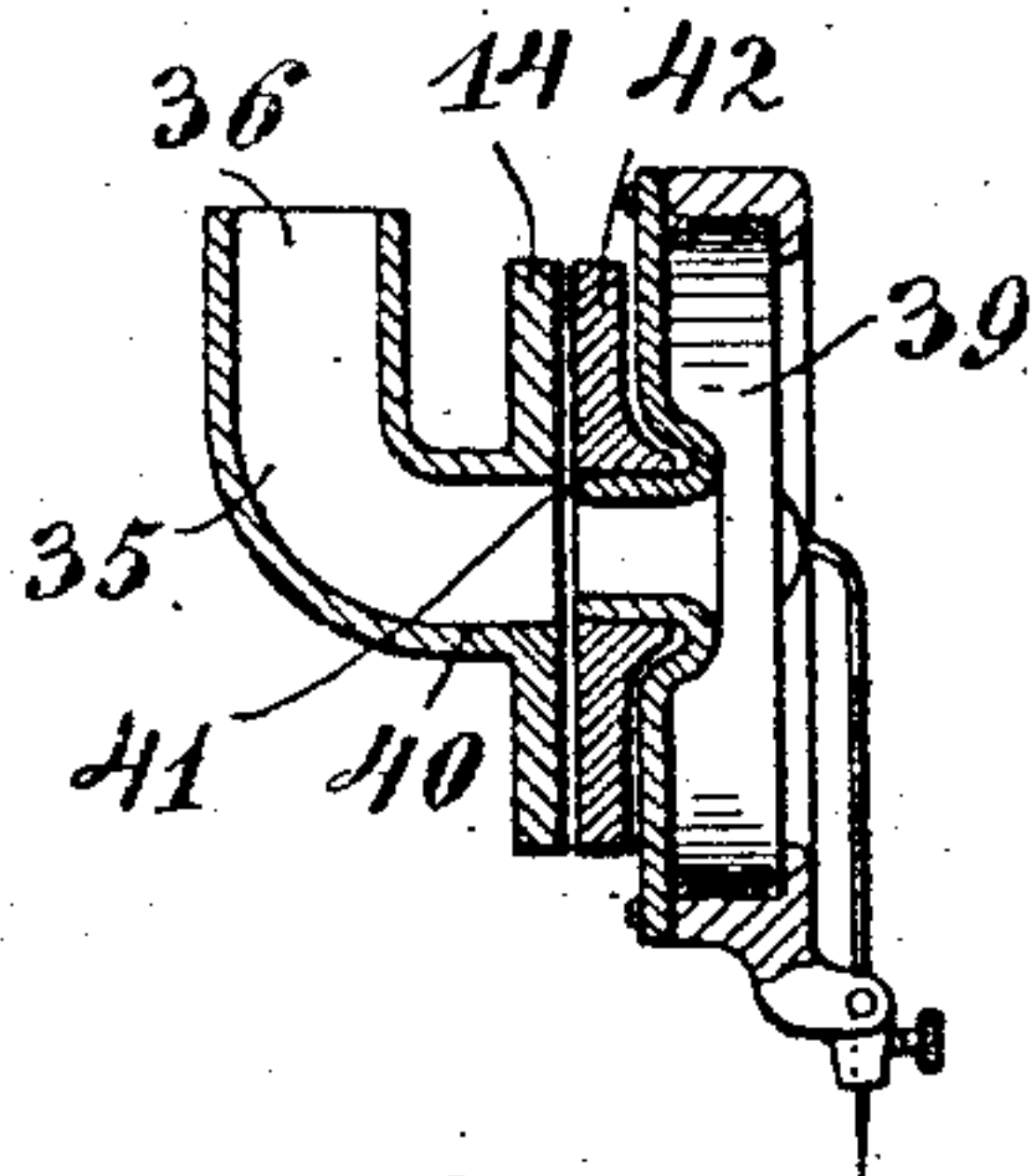
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2 SHEETS—SHEET 2.

FIG. 3.



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FIG. 4.

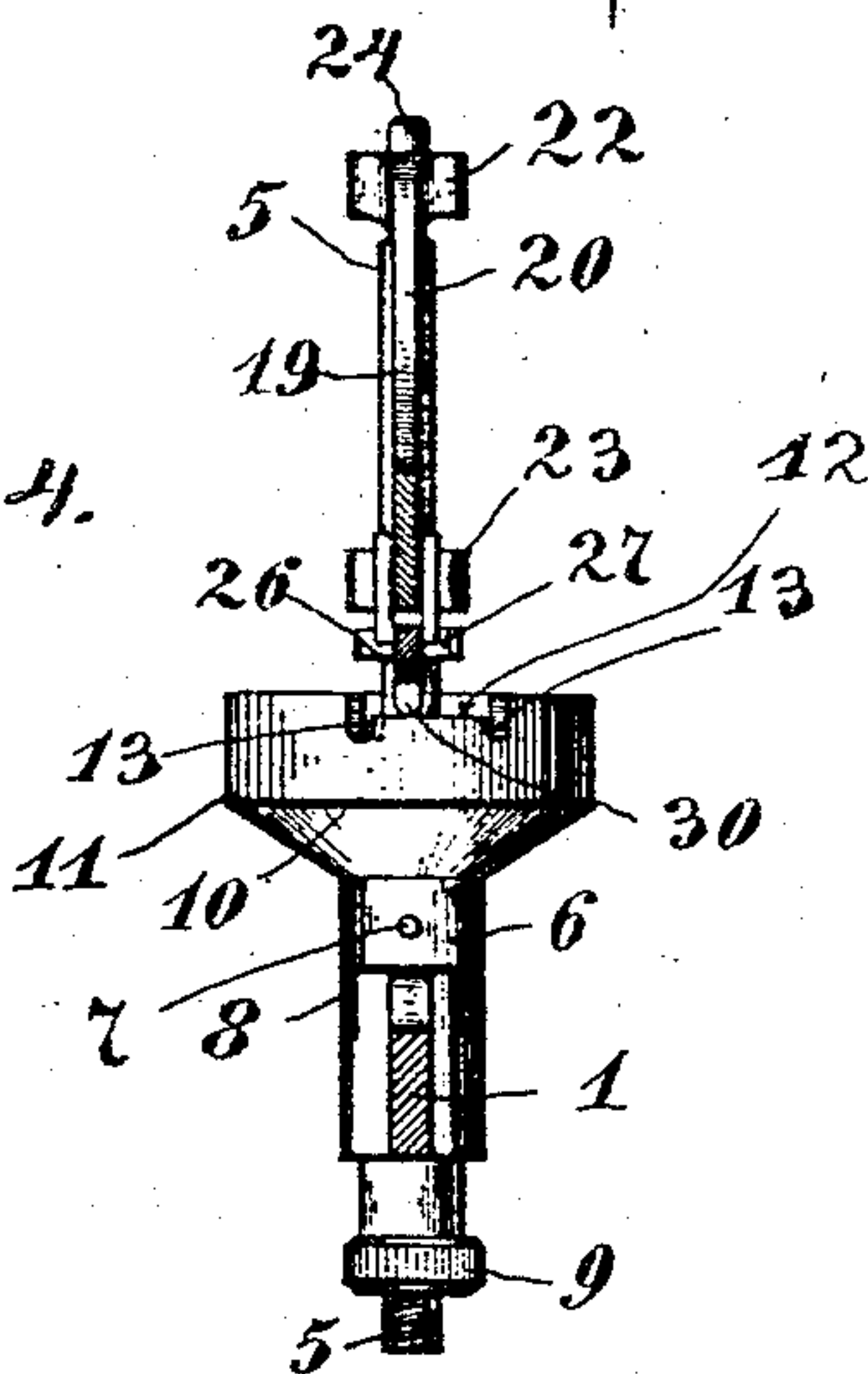
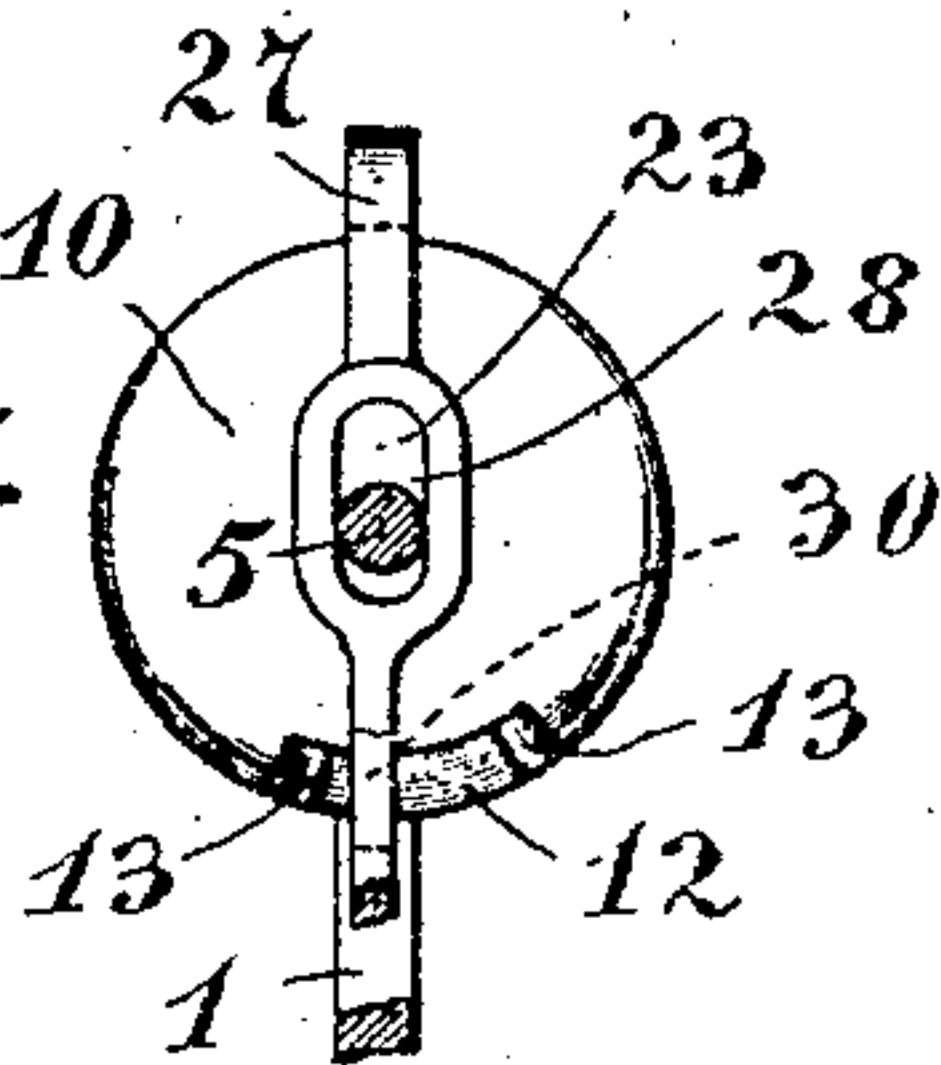


FIG. 5.



Witnesses

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## UNITED STATES PATENT OFFICE.

FREDERICK MYERS, OF NEW YORK, N. Y.

## PHONOGRAPH.

SPECIFICATION forming part of Letters Patent No. 793,627, dated June 27, 1905.

Application filed December 15, 1903. Serial No. 185,311.

*To all whom it may concern:*

Be it known that I, FREDERICK MYERS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Phonographs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in phonographs, using the term to include all instruments which reproduce articulate speech and other sounds, my invention relating particularly to means for permitting the horn to be turned in any required direction and for disposing the sound-box or device used in connection with the disk or record for recording or reproducing articulate speech and other sounds immediately adjacent to the inner end of the horn to prevent loss of volume of the sound between the sound-box and horn.

My invention consists in the construction and combination of devices hereinafter described and claimed.

One object of my invention is to provide in apparatus of the class described a pivoted horn which may be turned in any direction and a sound-box-carrying element movable at an angle to the plane of movement of the horn and across the intake of the latter.

A further object is to combine with a movable arm a horn-intake carried thereby, a sound-box carrier movable with the arm and also movable independently of and in a plane perpendicular to the plane of movement of said arm, and a sound-box carried by the sound-box carrier positioned thereby in operative relation to the horn-intake and movable with the carrier transversely with reference to the horn-intake.

A further object is to combine a movable supporting element having a tubular elbow forming the intake of and a pivotal support for and connection with a horn, a sound-box carrier connected to said element for movement therewith and also for movement in a different plane independently thereof, and a sound-box carried by said carrier positioned thereby in operative relation to and movable

therewith across the intake of said tubular elbow.

A further object is to provide, in combination with a pivoted arm movable in a horizontal plane, a horn-intake carried thereby, a sound-box carrier pivoted to the arm and movable therewith and also movable independently thereof in a vertical plane, a sound-box carried by the sound-box carrier positioned thereby in operative relation to and movable in a vertical plane across the horn-intake and means carried by said arm to raise the sound-box carrier and sound-box and support them in a raised position.

A further object of my invention is to provide improved means for carrying the horn and sound-box, which means is adapted for pivotal movement and also for angular movement with respect to its pivot and toward and from the disk or other record.

A further object of my invention is to provide an improved pivoted arm for carrying the horn and the sound-box, means to lock the arm at the limits of its pivotal movement, and means to release it, said releasing means being operative by the movement of the arm at an angle to its pivot.

In the accompanying drawings, Figure 1 is an elevation of a phonograph embodying one form of my invention. Fig. 2 is a top plan view. Fig. 3 is a detail sectional view taken on the plane indicated by the line *a-a* of Fig. 1. Fig. 4 is a similar view taken on the plane indicated by the line *b-b* of Fig. 1.

My invention is here shown in connection with the form of phonograph or sound recording and reproducing instrument known as the "Victor talking-machine," which uses a revolving record-disk, (indicated at *A*). I will have it understood, however, that my invention is adapted for use also in connection with other forms of instruments of this class, and I do not limit myself in this particular.

In accordance with the embodiment of my invention here shown I provide a bracket arm 1, which is detachably secured to one side of the case *B* of the instrument by screws 2. At the outer end of the bracket arm 1 is a vertically-disposed tubular enlargement 3, having in its upper end a transverse notch 4.



vertical pivot-pin 5 has its lower portion passed through the vertical bore of the enlargement 3, is provided with a sleeve 6, secured thereto by a pin 7, which sleeve bears on the upper end of the said enlargement 3, and has a depending flange 8, which enters the notch 4 and serves to prevent the pivot-pin from turning. A nut 9, having a milled head, is screwed on the lower portion of the pivot-pin and bears against the under end of the enlargement 3.

At the upper end of the sleeve 6 and clasped thereto or formed therewith is a cup-shaped device 10, having a vertical circular flange 11, concentric with the pivot-pin 5, which flange on the side opposite the box or case B is recessed, as at 12. At the ends of the said recess are depending notches 13.

The form of horn and sound-box carrying element here shown is an arm 14, which comprises an inner section 15 and an outer section 16, detachably connected together by a joint 17 and a bolt 18. The said joint and bolt effect a rigid connection between the two sections, as will be understood, and enable them to be readily taken apart, so that the carrying-arm may be compactly disposed for the purpose of storage and transportation. The inner end of the section 15 of said carrying arm or element is forked, as at 19, and provided with an upper arm 20 and a lower arm 21, which are respectively provided with eyes 22 23. The eye 22 is circular in form to receive the reduced upper end portion 24 of the pivot-pin 5, and the eye 23, through which also the pivot-pin passes, is elongated, as shown in Fig. 5. This construction of the carrying arm or element enables it to move pivotally and to also move vertically or at an angle with reference to its pivot, the extent of the said angular movement being limited by the length of the elongated pivotal eye 23, as will be understood. On the under side of the carrying arm or element at its inner end and pivotally connected thereto, as at 25, is a detent 26, which has an outwardly-extending arm 27, provided with an opening 28, which clears the pivotal pin 5, and having at its outer end on its under side a cam 29, which extends downwardly therefrom and the inner side of which is inclined substantially at an angle of forty-five degrees, as shown, and is adapted to coact with the opposing flange 11 of the cup 10, as hereinafter stated. The said detent 26 is further provided on its under side with a depending key 30, which extends into and travels in the recess 12 of the cup device 10 and coacts with the stops formed by the ends of the said recess to limit the pivotal movement of the carrying arm or element 15. Furthermore, the detent 26, by reason of its gravitating action, drops the key 30 into the notches at the extreme limits of the pivotal movement of the carrying arm or element 15 to lock the same, as will be understood.

At the outer end of the carrying-arm section 16 is mounted a wheel or roller 31. The same operates on a segmental track 32, which is concentric to the pivot-pin 5 and is detachably secured on the box or casing B by screws or other suitable devices 33, which pass through supporting-lugs 34, with which said segmental track is provided. The carrying-arm 15 extends across and over the record-disk A and moves from near the center to a point slightly without the periphery thereof at one side. A tubular elbow 35, which forms, in effect, the intake of the horn, extends from one side of the carrying arm or element 14 and is upturned vertically at its outer end, as at 36. The horn 37 for amplifying the sound, and which may be of any suitable construction, is provided at its inner end with a cylindrical portion 38, which is bent to form a downwardly-extending elbow and is telescopically fitted on the vertical portion 36 of the elbow 35. Thereby the horn is pivotally mounted and is enabled to be turned in any desired direction. It will be understood that there is an opening through the carrying-arm 14, with which the bore of the elbow 35 communicates.

The sound-box 39 is indirectly carried by the carrying element 14. It is here shown as provided with a tubular projection 40, adapted to fit in an opening 41 near the outer end of an arm 42, which is pivotally connected to the section 15 of the carrying arm or element 14, as at 43. The said pivot 43 is at some distance from the inner end of the arm 42, so that the latter is formed with a projection 44. The element which I herein designate as the "sound-box" is, generically speaking, the means which coacts with the record or disk for making records or for reproducing sound. It may be of any suitable construction, as specifically it is no part of my present improvement, and I do not desire to limit myself in this particular, as within the scope of the appended claims any form of sound-box or record-making or sound-reproducing means may be employed in connection with my invention. By thus securing the sound-box to the arm 42 the same is disposed immediately adjacent the inner end of the horn, as is clearly shown in the drawings, so that there is no loss in the volume of the sound between the sound-box and the inner end of the horn.

Since the sound-box is carried by the arm 42, which is pivotally connected to the carrying-arm 14, it follows that the sound-box is movable independently of the said carrying-arm and transversely with reference to the intake of the horn, so that it is adapted to play vertically, as may be required to enable it to adapt and adjust itself to inequalities in the surface of the recording-disk A. Such disks are rarely ever exactly true or plane. By thus enabling the sound-box to move independently of the horn-carrying arm, which



also indirectly carries the sound-box, the latter is enabled to adapt itself to the exact condition of the surface of the record-disk, and hence I obtain superior results.

5 To enable the sound-box to be moved upwardly from the record or disk and to be maintained in an elevated position out of operative relation thereto, I provide a lever 45, which is disposed on one side and is pivotally connected to the section 15 of the arm or carrying implement 14, as at 46, and has an inclined extension or cam 47 at its lower end, which engages the upper side of the extension 44 of the pivoted arm 42. A stop-stud 48 maintains the said lever normally in the position shown in Fig. 1. By turning the said lever in the direction of the arrow indicated in the said figure its cam 47, by engagement with the extension 44 of the arm 42, lifts the outer end of the latter, which directly carries the sound-box, so as to lift the latter and maintain the same in elevated position. Stop-stud 49 limits the movement of the said arm 42.

By the provision of the stop-notches 13 and 25 detent 26, hereinbefore described, the pivoted arm 14, which carries the horn and the sound-box, is locked when it is pushed to its extreme limit of movement in one direction or the other and held in place while the record or disk is being changed or a new pin provided for the sound-box. By provision of the pivoted arm 14 with the elongated eye 23, which adapts the said arm for angular as well as pivotal movement, the outer end of the arm may be lifted to some extent by taking hold of it, to enable the operator to move the arm pivotally and set the pin or needle of the sound-box or record-engaging device at any desired point on the record. It will be understood that by thus lifting the outer end of the arm 14 the inclined face of the cam 29 is caused to engage the flange 11 of the cup device 10, so as to raise the detent 26 and disengage its key 30 from the recess 12, thus permitting pivotal movement of the arm to any desired extent. The provision of the arm 42 with the opening 41 and the construction of the sound-box with the projection 40 enables the sound-box to be readily attached to the arm 42, and hence to the arm 14, and detached therefrom at will.

I do not desire to limit myself to the precise construction and combination of devices hereinbefore described, as modifications may be made therein without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

60 1. In apparatus of the class described, the combination of a supporting element movable in a horizontal plane, a horn-intake carried thereby, a sound-box carrier connected to said element and movable independently thereof in a vertical plane, a sound-box carried by the

sound-box carrier, positioned thereby in operative relation to and movable vertically across the horn-intake, and means carried by the said supporting element, to raise the sound-box carrier and the sound-box and support the same in a raised position, substantially as described.

2. In apparatus of the class described, a pivoted horn and sound-box carrying element movable also at an angle to its pivot, and means to lock the said element at the limits of its pivotal movement, said means releasing said element when the latter is moved in one direction angularly with reference to its pivot.

3. In apparatus of the class described, a pivoted horn and sound-box carrying element, in combination with a stop device, and a detent controlled by the movement of the said carrying element and coacting with the stop device to lock the said carrying element at the limits of its movement.

4. In apparatus of the class described, the combination of a pivot and a fixed stop device having stop-notches, a horn and sound-box carrying element mounted on the pivot and also movable angularly with reference thereto, and a gravity-detent, carried by said pivoted carrying element, coacting with the stop-notches of the stop device to limit the pivotal movement of the said carrying element, and caused to disengage the said stop-notches by an angular movement of the said carrying element in one direction.

5. In apparatus of the class described, a pivoted horn and sound-box carrying arm, having means to lock it at the limits of its pivotal movement, and means to release it, operated by a movement of the arm at an angle to its pivot.

6. In apparatus of the class described, a pivoted arm movable in a horizontal plane, a horn-intake carried thereby, a sound-box carrier pivoted to said arm and movable therewith and also movable independently thereof in a vertical plane, a sound-box carried by the sound-box carrier, positioned thereby in operative relation to and movable in a vertical plane across the horn-intake, and means, carried by said arm to raise the sound-box carrier and sound-box and support them in a raised position, all in combination, substantially as described.

7. In apparatus of the class described, the combination of a movable supporting element having a tubular elbow forming the intake of and pivotal support for and connection with a horn, and a sound-box movable with said supporting element, and positioned in operative relation to and independently movable across the intake of the said elbow, substantially as described.

8. In apparatus of the class described, the combination of a movable supporting element having a tubular elbow forming the intake of and a pivotal support for and connection with



a horn, a sound-box carrier connected to said  
element for movement therewith and also for  
movement, in a different plane, independently  
thereof, and a sound-box carried by said car-  
5 rier, positioned thereby in operative relation  
to and movable therewith across the intake of  
said tubular elbow, substantially as described.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit-  
nesses.

FREDERICK MYERS.

Witnesses:

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E. H. McCrum.