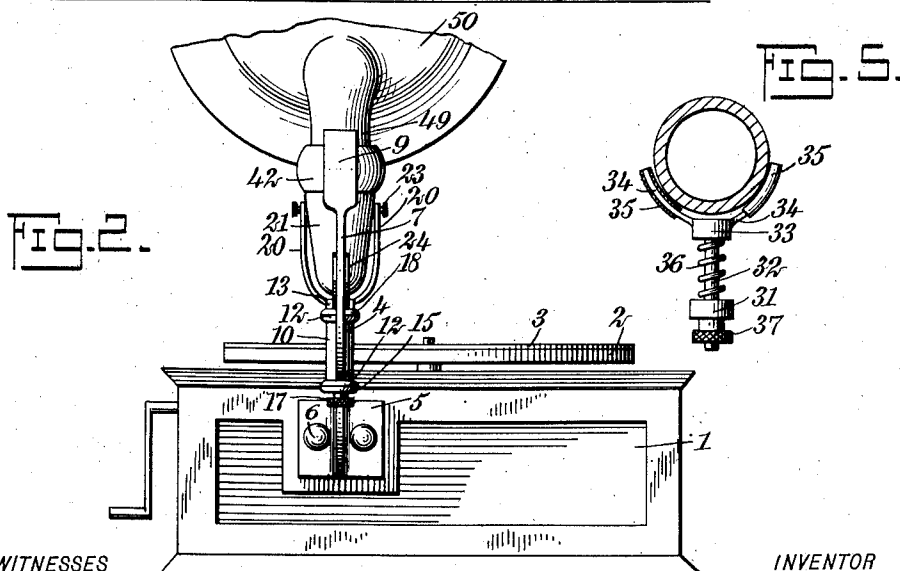
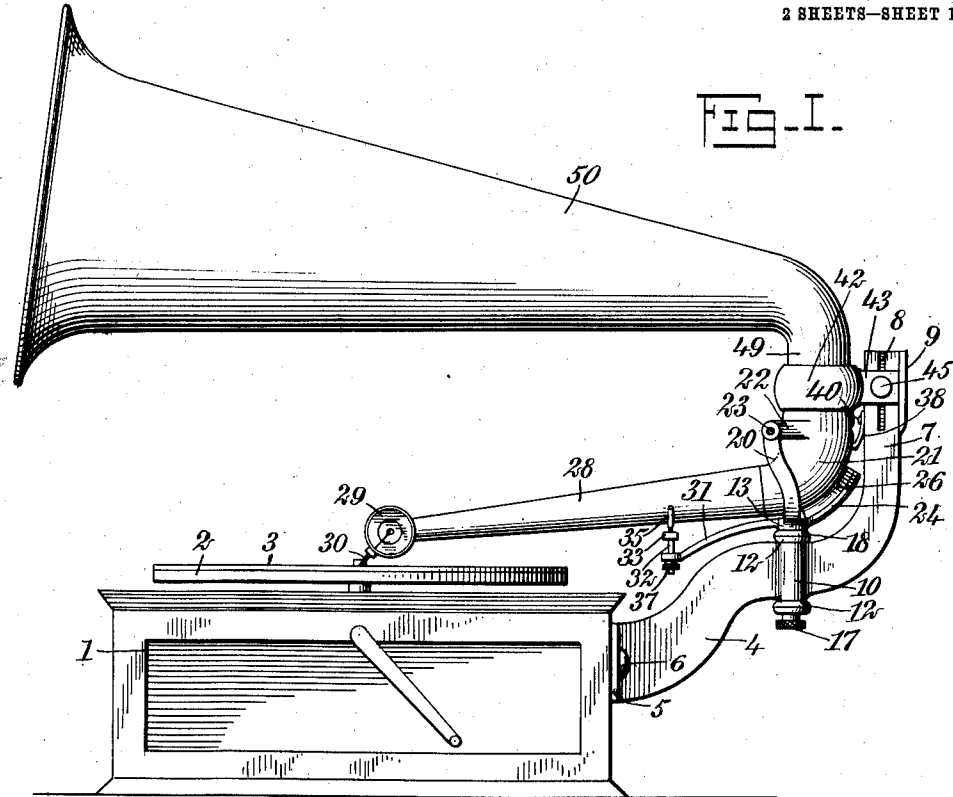


W. A. CHAPMAN.
TALKING MACHINE.
APPLICATION FILED OCT. 9, 1907.

901,781.

Patented Oct. 20, 1908.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 4.

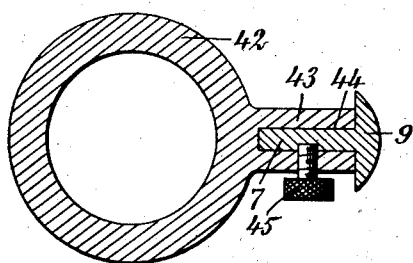


FIG. 3.

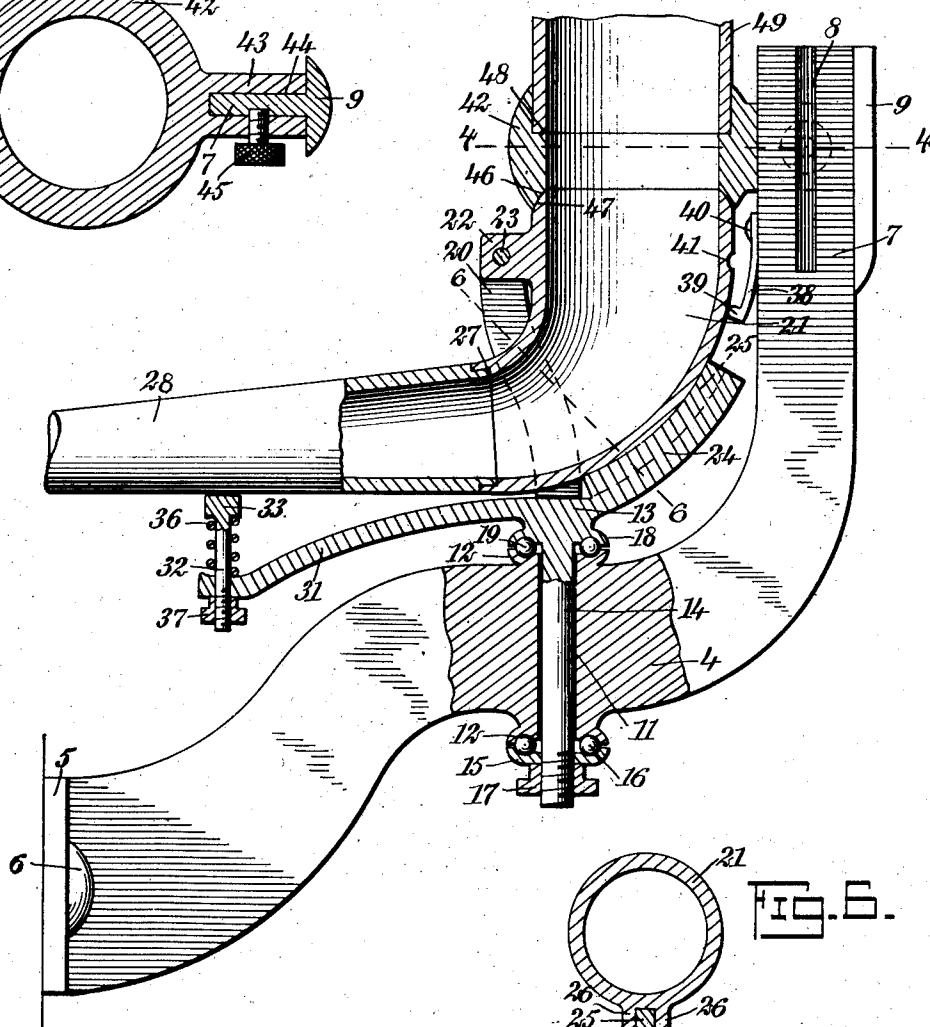
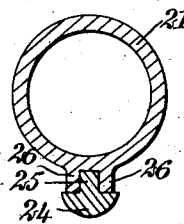


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM ALBERT CHAPMAN, OF SMITHVILLE, ARKANSAS.

TALKING-MACHINE.

No. 901,781.

Specification of Letters Patent.

Patented Oct. 20, 1908.

Application filed October 9, 1907. Serial No. 396,566.

To all whom it may concern:

Be it known that I, WILLIAM ALBERT CHAPMAN, a citizen of the United States, and a resident of Smithville, in the county of Lawrence and State of Arkansas, have invented a new and Improved Talking-Machine, of which the following is a full, clear, and exact description.

This invention relates to talking machines, and more particularly to the horn and sound tube attachments of talking machines employing disk records.

An object of the invention is to provide a talking machine having means for supporting the sound tube so that the latter is free to swing in two directions, without interrupting the propagation of the sound waves through the sound tube and the horn which communicates therewith.

A further object of the invention is to provide a device of the class described in which the sound tube is mounted free to swing in two directions; that is, in a horizontal and a vertical plane, and in which the sound tube is resiliently held, when in an operative position, thereby avoiding the imposing of excessive weight upon the record through the sound box and reproducer.

A still further object of the invention is to provide a device of the class described, in which the sound tube is connected with the horn by means of a perfectly fitting joint which permits of the free relative movement of the sound tube and the horn, without interfering with the propagation of the sound waves from one to the other, in which the sound tube is mounted to swing with a minimum of friction, and in which means are provided for securely holding the sound tube in an inoperative position, away from the record.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which

Figure 1 is a side elevation of a talking machine, showing my invention applied thereto; Fig. 2 is a rear elevation of the talking machine, showing a part of the horn broken away. Fig. 3 is an enlarged longitudinal section of a part of the device, show-

ing the sound tube and horn connection; Fig. 4 is a transverse section on the line 4—4 of Fig. 3; Fig. 5 is a transverse section through the sound tube near the end remote from the record; and Fig. 6 is a transverse section on the line 6—6 of Fig. 3.

Before proceeding to a more detailed explanation of my invention, it should be understood that the same is particularly useful with talking machines employing disk records, notwithstanding that it can also be used with different types of devices of this character.

Many of the details of construction can be altered without disturbing the underlying principle of the invention, which consists essentially in the manner of supporting the sound tube and the horn, the connection through which these communicate, and the manner of mounting the whole upon the talking machine body. In talking machines, the sound being reproduced is transmitted from the record through the sound box to the sound tube, the sound vibrations progressing through the sound tube to the horn which conducts them to the outer air and the ears of the hearers. It is essential that the sound tube be freely movable, in order to permit the reproducer to follow the indications upon the records when the machine is in operation. Furthermore, it must be possible to displace the entire tube to permit the records to be changed. In consequence, it is necessary to mount the sound tube in such a manner that it can move freely in at least two directions, without interrupting the internal communication between the sound tube and the horn. A flexible connection can of course be established between these two parts by means, for instance, of rubber tubing or the like, but it has been found that material of this nature serves to deaden the sound and is unserviceable for other reasons. Consequently, the connection between the sound tube and the horn should consist of a rigid walled member capable of conducting the sound waves freely. I provide a connection which is so jointed that the internal connection between the sound tube and the horn is at all times substantially uninterrupted, while it in no way interferes with sound propagation therethrough. Furthermore, the connection is substantially air-tight and thereby the admission of sound waves or air currents from the outside is obviated. Unless the sound

tube is suitably supported, too much weight is carried by the needle or stylus of the reproducer when the latter rests upon the record. For this reason I provide a resilient support for the sound tube, which takes the greater part of the weight from the reproducing parts and thereby prevents unnecessary wear both of the latter and of the record.

Referring more particularly to the drawings, 1 represents the body of a talking machine of the disk record type, which has a revolving table 2 for carrying the record 3. The talking machine has suitable operating mechanism (not shown) for rotating the record in the usual manner. A standard 4, formed from suitable material such as cast iron, brass or the like, is mounted at the side of the talking machine body by means of laterally disposed flanges 5 and screws or bolts 6. At the outer end, the standard has an upward, substantially vertically disposed post 7, provided with a groove 8 at one side and, at the rear, with a back 9, for a purpose which will appear hereinafter. The back is preferably formed integral with the standard. The standard intermediate of the extremities has a laterally extended part 10, through which is formed a bore or opening 11, the longitudinal direction of which is substantially vertical and parallel to the post 7. Surrounding the opening 11, at the upper and lower ends of the same, the standard has integral annular cups or ball races 12, for a purpose which will appear hereinafter.

A cradle 13, formed from suitable material such as cast-iron, brass or the like, is mounted to swing upon the standard by means of an integral shaft or spindle 14 revolvably arranged in the opening 11. The lower end of the spindle is threaded. An annular ball race 15 is arranged upon the spindle and rests against a set of ball bearings 16 located between the race 15 and the race 12. A thumb-nut 17 mounted upon the threaded end of the spindle, serves to hold the latter in position within the opening, at the same time suitably supporting the lower ball bearing. A ball race 18, is formed integral with the cradle at the end of the spindle adjacent to the same, and co-acts with the race 12 to form a ball bearing between the cradle and the standard, a set of balls 19 being provided for the purpose between the races. In this way the cradle is revolvably or pivotally arranged upon the standard and is free to swing in a horizontal plane with a minimum of friction. The cradle has forks 20 at the opposite sides. Between the forks 20 is arranged a hollow elbow 21, which is mounted to swing between the forks by means of an integral rib 22, extending laterally from the elbow and pivotally mounted by means of a pin 23, between the upper ends of the forks.

At one side, the cradle 13 has a curved extension 24, projecting toward the post 7 and provided with a tongue 25. The extension, as well as the tongue is curved in the arc of a circle having a radius equal to the distance between the extension and the pivotal point of the elbow. The adjacent wall of the elbow is similarly curved and has flanges 26, which form a groove slidably engaging the tongue 25. The tongue and the groove hold the elbow securely against lateral displacement, while permitting it to swing freely about its pivotal point.

At the lower edge, the elbow is fashioned interiorly to form a shoulder 27. The sound tube 28, has the end remote from the sound box constricted to fit into the lower end of the elbow and to form a tight connection therewith, as is shown most clearly in Fig. 3. The sound tube 28 has the usual sound box 29, with a needle or stylus 30, adapted to engage the record 3 and reproduce the sounds which have been recorded upon the same. Opposite to the extension 24 the cradle has an arm 31, at the end of which is slidably arranged a rod 32, mounted in a suitable opening of the arm. At the upper end the rod 32 has a head 33, provided with branching forks 34. The forks 34 are preferably covered with a cushion material such as sleeves 35, of rubber, and which serve to support the sound tube. A helical spring 36, is arranged upon the pin 32 between the arm 31 and the head 33, and resiliently holds the same in a normal position, thereby resiliently supporting the sound tube. The lower end of the pin 32 is threaded and carries a thumb nut 37, by means of which it is mounted in position. A spring catch 38, having a finger 39 at the outer end, is rigidly mounted by means of a screw or rivet 40, upon the post 7. The elbow has a recess 41, adapted to co-act with the finger 39 to hold the elbow and the sound tube in an inoperative position. When the sound tube is swung upwardly the elbow is pivoted between the forks 20, and the recess 41 comes into engagement with the finger 39 of the spring catch, and the latter then holds the parts in an inoperative position. When it is desired to lower the sound tube, it can be forced downward until the tension of the spring catch is overcome and the finger slips out of engagement with the recess. It will be understood that the latter is suitably rounded to permit this operation.

An annular connection 42, is adjustably mounted upon the post 7 by means of a lateral extension 43, provided with a longitudinal recess 44, which is slidably engaged by the post. A set screw 45 engages with the recess 8 of the post to hold the connection in position. The rear of the extension 43 seats against the back 9 of the post and assists in holding the connection in position. At the

lower edge the connection 42 is formed into a rounded socket by a curved bevel 46 which conforms with the correspondingly formed upper edge 47 of the elbow 21. The elbow 5 and the connection form a pivotal joint which permits the free movement of the elbow relative to the connection. Thus, when the sound tube and the elbow are swung in a horizontal plane, as the repro- 10 ducer follows the indications on the record, the contact between the elbow and the connection is not interrupted, the curved edge of the elbow sliding freely within the interiorly beveled lower edge of the connection. 15 At the upper edge, the connection is reamed out to form a seat 48 for the end 49 of the phonograph horn 50. The latter is firmly though removably mounted at the connection by means of the recessed seat.

20 Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a device of the class described, in combination, a standard, a cradle arranged 25 to swing upon said standard, a sound tube movably mounted upon said cradle and means carried by said cradle for supporting said sound tube, said cradle having a guideway, said sound tube having a part engag- 30 ing slidably at said guideway.

2. In a device of the class described, in combination, a standard, a cradle arranged to swing upon said standard, a sound tube arranged to swing upon said cradle in a 35 direction at an angle with the direction of swing of said cradle, and resilient means carried by said cradle for supporting said sound tube, said cradle having a guideway, said sound tube having a part engaging slid- 40 ably at said guideway.

3. In a device of the class described, in combination, a standard, a cradle arranged to swing upon said standard, a sound tube arranged to swing upon said cradle, an ad- 45 justable connection mounted upon said standard and adapted to carry a horn, said connection communicating with said sound tube, and resilient means carried by said cradle for supporting said sound tube.

4. In a device of the class described, in combination, a standard, a cradle pivotally 50 mounted upon said standard, an elbow mounted to swing upon said cradle, a connection movably engaging said elbow and communicating interiorly therewith, said 55 connection being adapted to support a horn, a sound tube secured to said elbow, and resilient means carried by said cradle for supporting said sound tube, said cradle hav- 60 ing a guide tongue, said elbow having a guide groove engaging slidably at said tongue.

5. In a device of the class described, in combination, a standard, a cradle pivotally 65 mounted upon said standard, said cradle

being formed to constitute a guideway, an elbow mounted to swing upon said cradle and slidably engaging said guideway, a connection adjustably carried by said standard and movably engaging said elbow and com- 70 municating interiorly therewith, a horn carried by said connection, a sound tube secured to said elbow and communicating interiorly therewith, and resilient means carried by said cradle for supporting said sound 75 tube.

6. In a device of the class described, in combination, a standard, a cradle pivotally mounted upon said standard and having a guideway, an elbow mounted to swing upon 80 said cradle and movably engaging said guideway, a connection movably engaging said elbow and communicating interiorly therewith, a horn carried by said connection, a sound tube secured to said elbow, resilient 85 means carried by said cradle for supporting the said sound tube, and a catch for holding said elbow in one position.

7. In a device of the class described, in combination, a standard having a post, a 90 connection adjustably mounted upon said post and adapted to support a horn, a cradle arranged to swing upon said standard, an elbow arranged to swing upon said cradle in a direction at an angle to the direction of 95 swing of said cradle, said elbow and said connection communicating interiorly, a sound tube secured to said elbow and communicating interiorly therewith, and resilient means carried by said cradle for supporting said 100 sound tube, said cradle having a curved guide tongue, said elbow having a correspondingly curved guide groove slidably engaging said tongue.

8. In a device of the class described, in 105 combination, a horn, a sound tube, a standard having a post presenting a lateral groove and flanges constituting a back, a connection slidably arranged upon said post, and means for engaging said groove and serving to hold 110 said connection in a plurality of positions, said connection being adapted to communicate with said sound tube and to support said horn.

9. In a device of the class described, in 115 combination, a standard having a post presenting a lateral groove and a back, an annular connection having a recess slidably arranged upon said post, means for engaging said groove and serving to hold said con- 120 nection in a plurality of positions, said connection abutting against said back, a sound tube, and means for effecting an interior communication between said connection and a sound tube, said connection being adapted 125 to support a horn.

10. In a device of the class described, in combination, a standard, a cradle swiveled 130 upon said standard and having a guideway and forks, an elbow pivoted between said

forks and movably engaging said guideway, said guideway being curved in the arc of a circle having its center at the pivotal axis of said elbow, a sound tube communicating
5 with said elbow, resilient means carried by said cradle for supporting said sound tube, and a connection movably engaging said elbow and adapted to carry a horn.

11. In a device of the class described, in
10 combination, a standard having a post, an annular connection adjustably mounted upon said post and presenting a horn seat, a horn mounted at said horn seat, a cradle swiveled upon said standard and having a
15 guideway and forks, an elbow pivotally mounted between said forks and movably engaging said guideway, a catch carried by said post and serving to hold said elbow in one position, said elbow and said connection
20 being adapted movably to engage, a sound tube secured to said elbow, and resilient means carried by said cradle for supporting said sound tube.

12. In a device of the class described, in

combination, a standard having an opening 25 therethrough and adjacent to the ends of said opening, roller bearing races, a cradle having a spindle revolubly arranged in said opening and provided with a roller bearing race at the end of said spindle adjacent to
30 said cradle, a roller bearing race arranged upon said spindle near the end remote from said cradle, an adjustable member to hold the said last-mentioned race in position, said adjustable member engaging said last-men- 35 tioned race, an elbow pivotally mounted upon said cradle, a sound tube secured to said elbow, resilient means carried by said cradle for supporting said sound tube, and a connection movably engaging said elbow 40 and adapted to carry a horn.

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

WILLIAM ALBERT CHAPMAN.

Witnesses:

T. L. NORRIS,
S. A. D. JONES.