

No. 852,725.

PATENTED MAY 7, 1907.

T. KRAEMER & H. SHEBLE.
TALKING MACHINE.

APPLICATION FILED DEC. 19, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

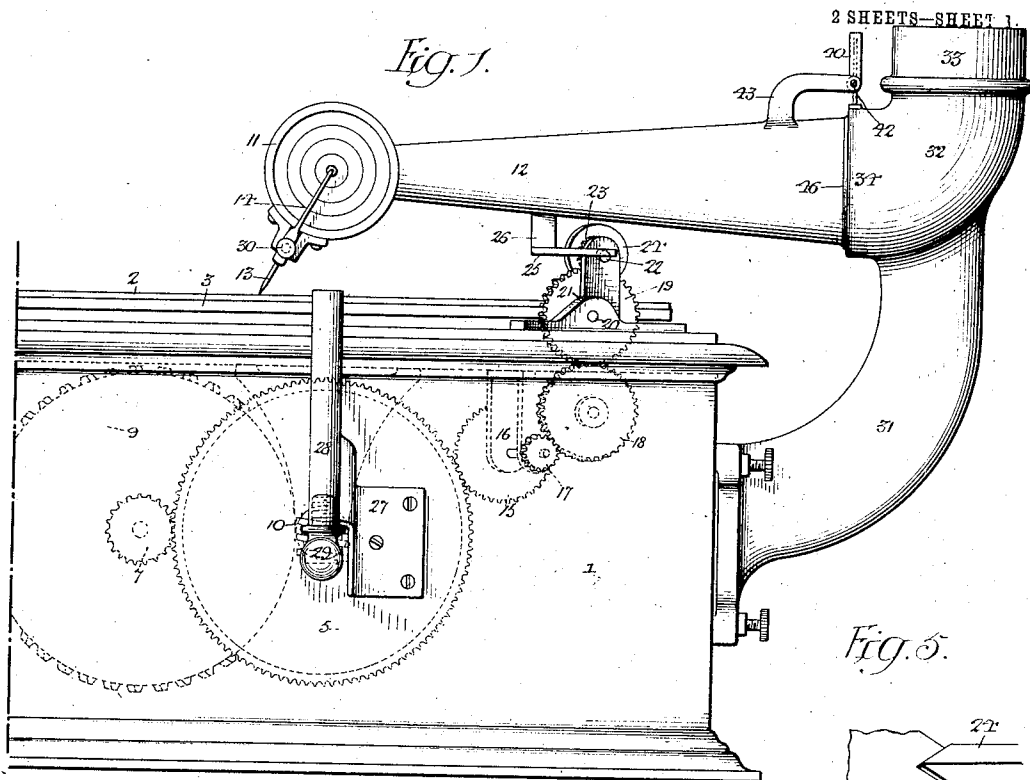


Fig. 5.

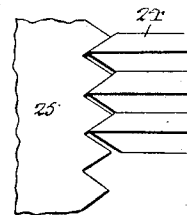
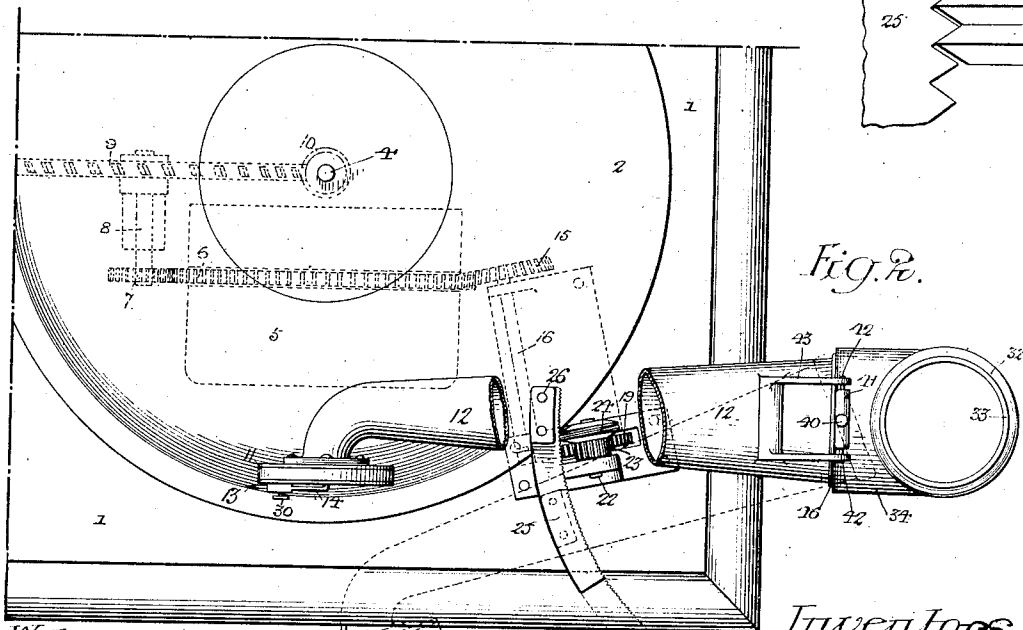


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

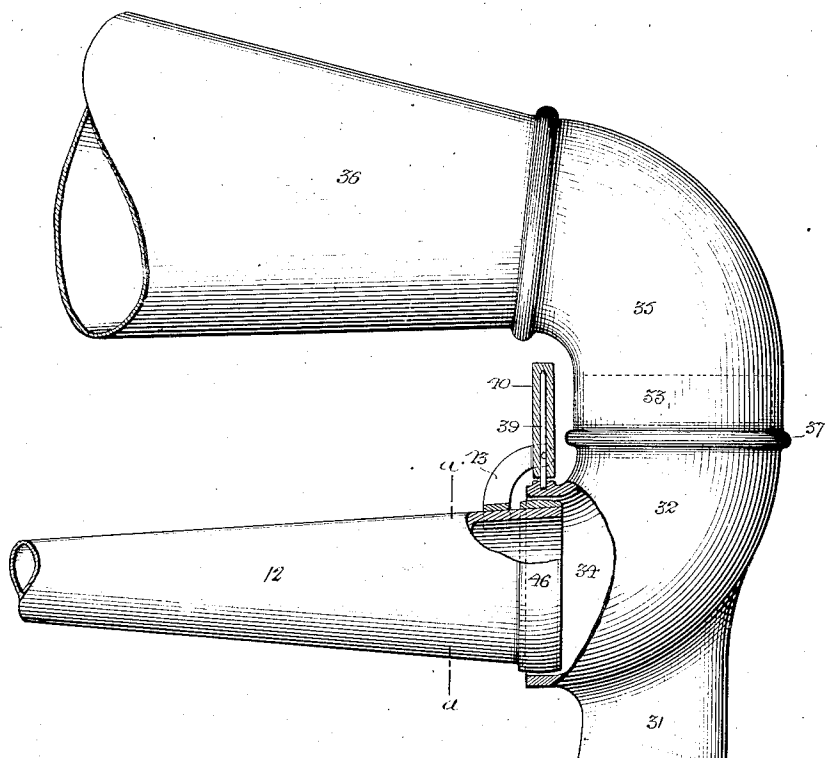
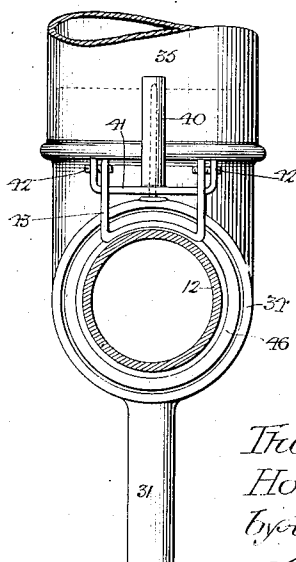


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS KRAEMER AND HORACE SHEBLE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO HAWTHORNE AND SHEBLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TALKING-MACHINE.

No. 852,725.

Specification of Letters Patent.

Patented May 7, 1907.

Application filed December 19, 1905. Serial No. 292,429.

To all whom it may concern:

Be it known that we, THOMAS KRAEMER and HORACE SHEBLE, both citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Talking-Machines, of which the following is a specification.

The object of our invention is to provide simple and effective means for so mounting and controlling the hollow arm carrying the sound-box of a disk-record talking machine, that said arm can be swung in any desired direction without restraint because of pressure exerted upon a pivotal portion of the arm by the amplifying horn used in connection with the machine, and can be caused to follow the spiral groove of the record without wear upon the walls of said groove.

In the accompanying drawing Figure 1 is a side elevation of sufficient of the motor box of a disk-record talking machine and of the sound-box-carrying arm and mounting therefor to illustrate our present invention; Fig. 2 is a plan view of the same with part of the sound-box-carrying arm broken away, parts of some of the convolutions of the spiral groove of the record being also shown; Fig. 3 is a view, partly in elevation and partly in vertical section, of the mounting for the sound-box-carrying arm, this view showing also part of the amplifying horn and its mounting; Fig. 4 is a transverse section on the line *a-a*, Fig. 3, and Fig. 5 is an enlarged view of part of the device.

1 represents part of the motor-containing box of that type of talking machine in which the record is formed upon a flat disk 2, the latter being mounted upon a rotating table 3, having a central spindle 4, and rotative movement being imparted to said spindle from the spring structure 5 by means of a spur wheel 6, a spur pinion 7, a counter shaft 8, and spiral toothed gears 9 and 10. In machines of this type the sound box 11 is carried by a hollow arm 12, and the latter is usually mounted so as to swing about a vertical axis, whereby, when the stylus 13, which is carried by the stylus lever 14 of the sound-box, has been caused to engage with the spiral groove of the record 2, it will follow said groove as the record is rotated, the hollow arm 12 swinging about its axis so as to permit such movement of the stylus, which, of course, is

independent of its rapid vibration due to the wavelike configuration of the groove, these rapid vibrations being transmitted through the medium of the stylus lever to the diaphragm of the sound-box, so as to reproduce the sounds represented by said wavelike configuration of the groove.

In carrying out our invention, we impart swinging movement to the arm 12 by means independent of the record, this movement being so timed in respect to the speed of rotation of the record that the stylus 13 will follow the spiral groove without such pressure upon either wall of the same as to have any material wearing effect thereon, hence the integrity of the record will be preserved indefinitely. This independent movement of the swinging arm 12 is effected in the following manner: Meshing with the same spur wheel 6 of the spring structure which drives the spindle 4 of the record-carrying table 3, is a spur pinion 15, mounted upon a shaft 16, the latter being mounted in suitable bearings within the motor box 1, or upon the under side of the lid of the same, and having another spur pinion 17 which meshes with a spur gear 18 inside the box, said spur gear 18 being in mesh with another spur gear 19 which projects through the lid of the box and is mounted upon a short shaft or spindle 20 carried by a bearing 21 on the lid of the box, said bearing also carrying another short shaft or spindle 22, which is secured to, or forms part of, a worm 24, as shown in Fig. 2. The spur pinion 23 meshes with the spur wheel 19 and the worm 24 is in mesh with the teeth of a segment 25 which is carried by, or forms part of, a post 26, depending from the under side of the hollow arm 12, as shown in Fig. 1, the teeth of the segment 25 and worm 24 being of a pitch corresponding with the pitch of the spiral groove of the record, whereby the stylus 13 will always be maintained in said groove. Some play is permitted between the threads of the worm 24 and the teeth of the segment 25, however, as shown in Fig. 5, so that the stylus 13 can accommodate itself to any slight departure from a true spiral course presented by the groove of the record.

At one side of the motor box 1 is a bracket 27 carrying a stud 28 which has, at the bottom, a screw-plug 29, the upper end of this tubular stud 28 serving as a support for the

stylus lever when the sound-box-carrying arm is thrown to one side, as shown by dotted lines in Fig. 2. When the stylus lever is thus supported, the stylus 13 can be dropped from the same into the tubular stud 28 by slackening the confining screw 30, whereby said stylus is normally secured to the stylus lever, the discarded stylus then dropping into the tubular stud 28, and when a sufficient number of them have accumulated therein, they can be discharged therefrom by removing the plug 29 at the bottom of the same.

In order to mount the sound-box-carrying arm 12 so that it can swing freely to and fro and can be lifted in order to free the stylus from engagement with the record and permit of the application of a fresh stylus to the stylus lever, we mount said arm 12 in the following manner. A bracket 31 secured to the side or end of the motor box 1 is provided at its upper end with a tubular elbow 32 having a vertical termination or mouth 33 and a horizontal, or substantially horizontal, termination or mouth 34. To the termination 33 is pivoted another elbow 35 which carries the amplifying horn 36 of the machine, and is supported vertically by a rib or flange 37 on the vertical member of the elbow 32, whereby said horn is free to turn about a vertical axis. Secured to, and projecting upwardly from, the horizontal termination or mouth 34 of the elbow 32, is a vertical pin 39, upon which is pivotally mounted a socket 40, which is provided, at its lower end, with a laterally branching yoke 41, terminating in pintles 42, and to these pintles are hung the upwardly and rearwardly curved arms of a yoke 43 secured to the top of the hollow arm 12. The open end of the hollow arm 12 projects into the horizontal termination or mouth 34 of the elbow 32, and this projecting portion is provided with an external ring or collar 46, whose external configuration constitutes a segment of a sphere, and, as the vertical pin 39 forms what is practically a continuation of a vertical diametrical line drawn through the mouth 34 of the elbow 32, a certain amount of lateral swing of the hollow arm 12 is permitted without withdrawing its end from engagement with the said mouth.

When a more extended lateral swing is desired, the free end of the arm is lifted so that the arm will swing upon its pivots 42, and, as the latter are in a plane above the mouth 34, the open end of the arm can be fully withdrawn from said mouth, whereupon the arm can be swung laterally in either direction to any desired extent, the amount of lift thus provided also insuring free access to the stylus lever of the sound box, and thus permitting ready removal of an old or worn stylus, and the ready application of a new and unworn one.

We claim:

1. The combination of the rotating record holder of a disk-record talking machine, a sound-box having a record-engaging stylus, a swinging sound-box-carrying arm and a device for moving the latter having, as elements, a toothed segment and a worm loosely engaging the same, so that the stylus can accommodate itself to any slight departure from a true spiral course presented by the groove of the record.

2. The combination of the rotating record holder of a disk-record talking machine, a sound-box having a record-engaging stylus, a swinging sound-box-carrying arm, and a support for said arm when the stylus is free from engagement with the record, said support consisting of a tubular stud mounted upon the motor box of the machine.

3. The combination of the rotating record holder of a disk-record talking machine, a sound-box having a record-engaging stylus, a sound-box-carrying arm, a support therefor having a projecting vertical pin, a socket pivotally mounted upon said pin and carrying a yoke, and a second yoke carried by the arm and pivotally mounted upon the yoke of the socket.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses.

THOMAS KRAEMER.
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Witnesses:

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