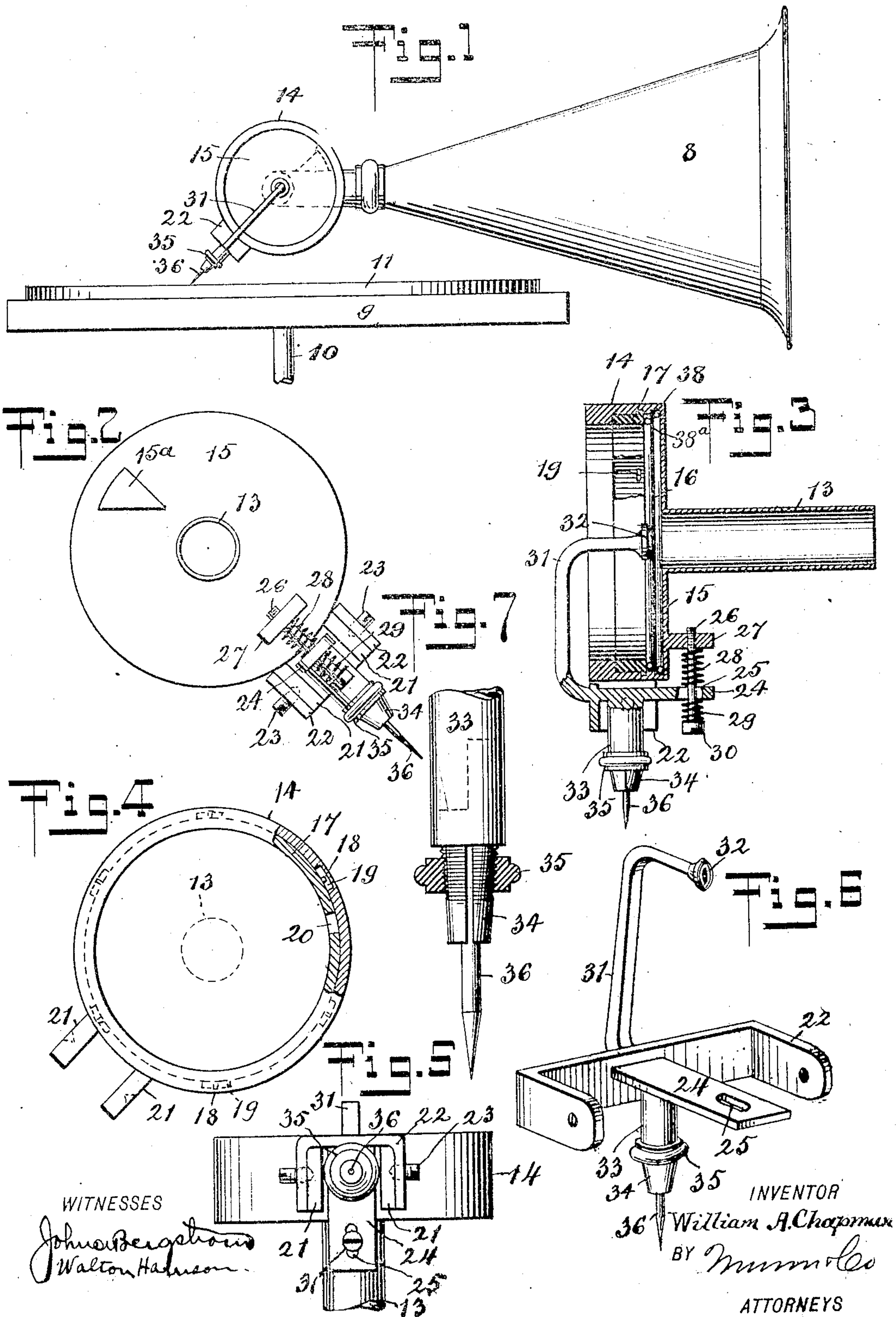


No. 888,306.

PATENTED MAY 19, 1908.

W. A. CHAPMAN.
ATTACHMENT FOR TALKING MACHINES.

APPLICATION FILED AUG. 5, 1907.



UNITED STATES PATENT OFFICE.

WILLIAM ALBERT CHAPMAN, OF SMITHVILLE, ARKANSAS.

ATTACHMENT FOR TALKING-MACHINES.

No. 888,306.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed August 5, 1907. Serial No. 387,138.

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 Attachment for Talking-Machines, of which the following is a full, clear, and exact description.

My invention relates to talking machines and admits of general use, but is of peculiar value in connection with sound reproducers employed upon disk talking machines.

Among the purposes of my invention are general improvement of the tones, amelioration of the scratching and metallic harshness and the development of delicate sounds difficult of reproduction.

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 figures.

Figure 1 is a fragmentary side elevation of a disk talking machine equipped with my invention and ready for use; Fig. 2 is an enlarged rear elevation of the diaphragm box provided with a needle and with connections for enabling the latter to transmit vibrations to the diaphragm; Fig. 3 is a central vertical section through Fig. 2 showing the adjusting screw for controlling the movement of the needle and also showing the means for transmitting vibrations from the needle to the diaphragm; Fig. 4 is a front elevation of the diaphragm box partly broken away; Fig. 5 is an edge view of the diaphragm showing means for adjusting the vibrator which is pivotally mounted upon the diaphragm box; and Fig. 6 is a perspective of the vibrator and its accompanying mechanism for carrying the needle.

A horn is shown at 8 and a turntable at 9, the latter being mounted upon a revoluble stem 10 and supporting a disk tablet 11. A sleeve 13 is connected with the diaphragm box, 14, the latter having the form of a flat receptacle and being provided with a bottom 15. This bottom is provided with a vent passage 15^a.

A diaphragm is shown at 16 and at 17 is shown a spring ring. Mounted upon this spring ring are bosses 18 which project into apertures 19 in the diaphragm box 14. The spring ring 17 is provided with a slot 20 by aid of which it may be contracted so as to enter the diaphragm box. Lugs 21 are

mounted rigidly upon the diaphragm box and disposed parallel with each other. A yoke 22, of substantially U-shape, is journaled upon the lugs 21 by aid of screws 23, the latter being conical-pointed and being adjustable.

A plate 24 is connected with the yoke 22 and is provided with a slot 25. A screw 26 extends through a lug 27 threaded to fit it and mounted upon the bottom 15 of the diaphragm box. Spiral springs 28, 29 encircle the screw 26. This screw has a slotted head 30 to receive the point of a screw driver. An arm 31 is mounted integrally upon the yoke 22 and is provided with a tap 32 which engages the center of the diaphragm 16. A sleeve 33 is mounted rigidly upon the plate 24 and is thus rendered integral with the arm 31. The sleeve 33 carries a chuck 34 made in halves, threaded externally, and encircled by a ring 35, the latter being threaded internally.

A needle is shown at 36 and is inserted within the chuck 34. By turning the ring 35 in one direction the chuck releases its grip upon the needle, whereas by turning the ring 35 in the opposite direction, the needle is gripped tightly.

A rubber gasket or washer 38 is mounted in the sound box. This gasket or washer is round in cross section and from one-eighth to three-sixteenths of an inch in diameter, and is seated in a groove in the wall of the sound box, said groove being preferably of a depth equal to one-third of the diameter of the gasket or washer. Upon this gasket or washer rests the diaphragm 16 and upon said diaphragm rests a second rubber gasket or washer 38^a of the same shape and diameter as the gasket or washer 38, but the gasket or washer 38^a is not let into the wall of the sound box; and upon said second gasket or washer rests the spring ring 17. It will thus be seen that through this arrangement the edge of the diaphragm 16 rests on an inwardly sloping surface or seat formed by the first gasket or washer 38, that the second gasket or washer 38^a bears on the diaphragm 16 inside, this effecting the putting of the diaphragm under a strain or tension, and the spring ring 17 not only holds the system in place, but further exerts a spring pressure on the upper gasket or washer 38^a. This pressure around the rim or near the edge of the diaphragm induces a uniform strain throughout the diaphragm to the increase of its re-

silency or quickness to respond to any impulse. This I consider a novel and most important feature.

My invention is used as follows: The parts 5 being arranged as above described, the operator adjusts the tension of the arm 31 against the diaphragm 16 and in doing this makes use of the screw 30, as will be understood from Fig. 3. The needle 36 is now brought 10 into engagement with the sound grooves of the disk tablet 11 and the disk is caused to rotate. Vibrations are communicated from the sound record through the needle 36, sleeve 33 and arm 31 to the diaphragm 16 15 and the sounds are thus reproduced.

From the mountings of the arm 31 it will be noted that this arm has a very simple motion which corresponds to the vibration of the diaphragm. It is impossible for the arm 20 31 to have any considerable amount of play and its motion is therefore comparatively true and positive.

In order to remove the diaphragm 16 the diaphragm box 14 is taken from the machine 25 and the spring ring 17 pressed inwardly so as to withdraw the bosses 18 from the apertures 19. The spring ring being taken out, the diaphragm and rubber washers can readily be taken out.

30 It will be noted that the axis of vibration of the arm 31 coincides with the axes of the screws 23, and therefore lies in a plane cross-

ing at a right angle the general longitudinal direction of the needle 36.

Having thus described my invention, I 35 claim as new and desire to secure by Letters Patent:

1. The combination of a diaphragm, an arm for actuating the same, a yoke rigidly connected with said arm, a plate connected 40 with said arm and said yoke, said plate being provided with a slot, a pin extending through said slot, a spring encircling said pin and engaging said plate at a point adjacent to said slot, a mounting for said pin, and mechanism 45 connected with said arm and provided with means for supporting a needle.

2. The combination of a diaphragm, an arm engaging said diaphragm for the purpose of actuating the same, a yoke rigidly 50 connected with said arm, a pivotal support for said yoke, a plate mounted centrally upon said yoke and extending therefrom, a spring engaging said plate, means for adjusting said spring relatively to said plate, and mechan- 55 ism connected with said arm for supporting a needle.

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

WILLIAM ALBERT CHAPMAN.

Witnesses:

GEORGE W. BRADY,
S. A. D. JONES.