

914,826.

L. T. HAILE.
GRAMOPHONE.
APPLICATION FILED JULY 8, 1907.

Patented Mar. 9, 1909.

Fig. 1.

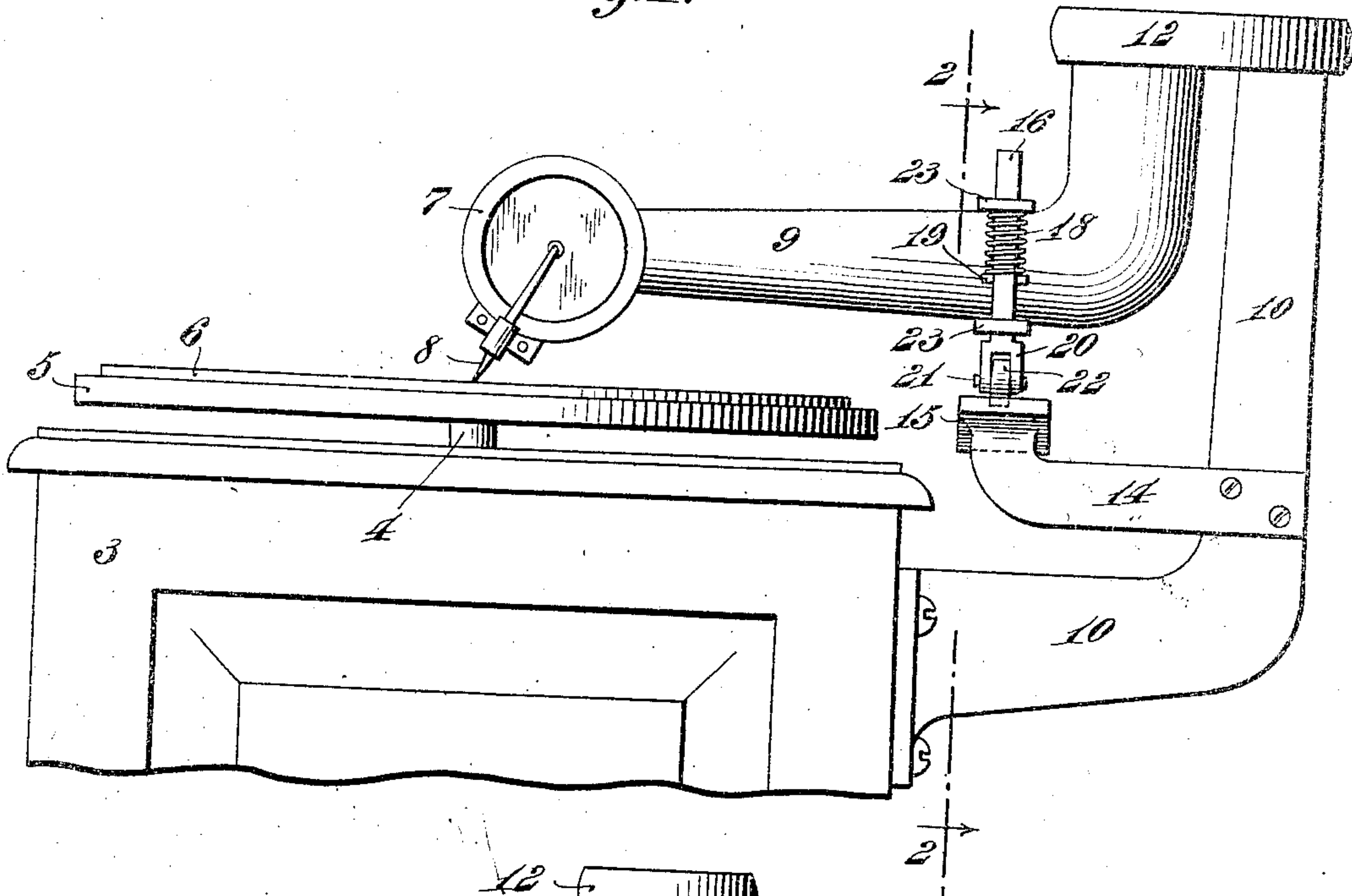
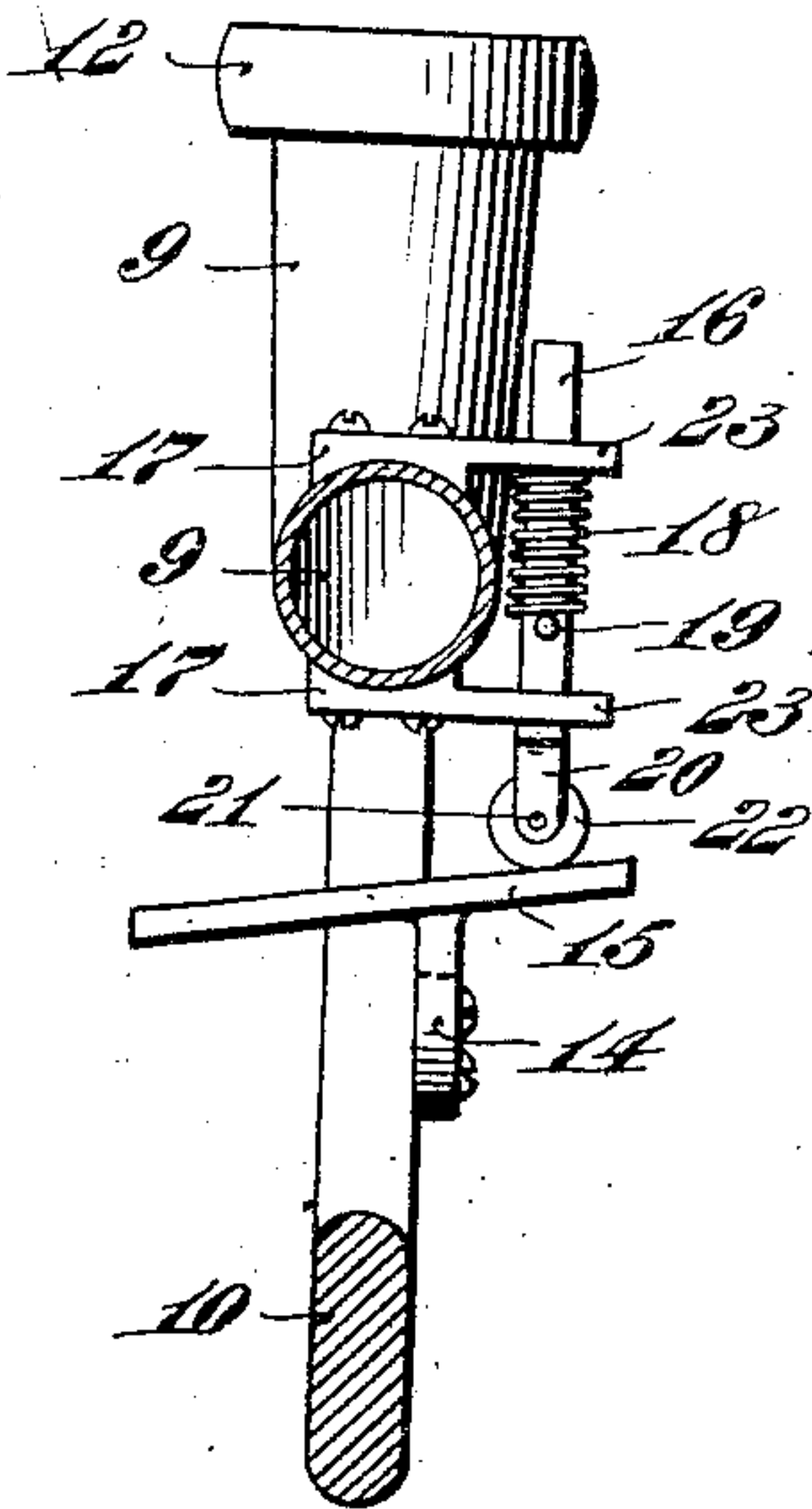


Fig. 2.



WITNESSES:

Jas. C. Wolensmith
 Q. M. Fiddler

INVENTOR

INVENTOR
Suther J. Haile
BY

BT

L. V. Ventore

ATTORNEY

UNITED STATES PATENT OFFICE.

LUTHER T. HAILE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HAWTHORNE & SHEBLE MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GRAMOPHONE.

No. 914,826.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed July 8, 1907. Serial No. 382,575.

To all whom it may concern:

Be it known that I, LUTHER T. HAILE, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Gramophones, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention has for its object to provide means for operatively supporting and propelling the sound-box mechanism and its adjunctive stylus or needle over the rotating sound-record or tablet, in order that the latter shall be relieved of the necessity, as in the known type of such machines, for the performance of that function. Advantages flowing from my invention, in the performance of that function by means distinct from the record-tablet itself are manifold, chief of which are that considerable of the weight of the sound-box mechanism is no longer borne by the record-tablet, resulting in its sound-grooves being less worn by any given amount of use of the machine, and also tending largely to compensate for inequalities in the record; and the needle has less, if any, scratching against the non-vibration producing bottom of the sound-grooves; and last, but of equal if not greater importance, the needle is kept in closer contact with the side walls of the sound grooves, resulting in imparting to it stronger vibratory movements and consequently effecting like vibrations of the sound-box diaphragm and consequent louder and clearer tones therefrom.

In the accompanying drawings wherein Figure 1 is a side elevation, and Fig. 2 a section on line 2—2 of Fig. 1, is shown my invented mechanism as applied to a known type of gramophone, only so much of the latter being shown as is necessary to understand and apply my invention thereto.

Referring now to said drawings: 3 indicates a gramophone cabinet containing, as usual, the main actuating shaft 4 for the rotating turn-table 5 which operatively supports the record-tablet 6; and 7 indicates a known type of sound-box mechanism with its stylus or needle 8, while 10 indicates a bracket arm fixedly mounted on the side of the cabinet 3, and supporting the sound-conveying tube 9 which directly, in some types, and indirectly

in other types, carries on its smaller and inlet end the diaphragm-holder or sound-box 7 and its adjunctive parts. The bracket arm 10 has a yoke or other analogous bearing 12 to enable the sound-conveying tube 9 to freely swing laterally in a short arc of a circle, as usual, to enable the sound-box mechanism to traverse the record radially, from rim to center thereof, and operatively contact with the spiral sound-grooves therein, while such record is being rotated by the main actuating shaft as usual, in the operating of the gramophone. My device may be applied to any form of that type of talking machine having a horizontally-disposed rotatable record-tablet.

My added device, I will now describe by reference to the drawing. A supporting bracket 14 is shown mounted on the lower part of the usual bracket 10, though, if preferred, it may be mounted independently thereof and on the side wall of the cabinet 3. On the free end of the bracket 14 is fixedly supported a small flat plate 15, an essential of which is that it shall be supported on an incline relatively to the horizontal plane of the turn-table and record-tablet, the incline downward being toward the center of the turn-table, in the direction of the lateral arc-like swing of the sound-box mechanism and the sound-conveying arm which carries it, so as to constitute an inclined plane relatively thereto. Although I have shown this plate 15 fixedly supported on the free end of the bracket 14, it is obvious that it may be mounted thereon so as to be adjustable vertically, such as by a pin playing in a slot in the end of the bracket 14, and controlled by a set screw or other analogous means so that not only the vertical height but the angle of inclination of the plate 15, relatively to the tablet, may be regulated if desired. The element, co-acting with the inclined plate, in my device, to accomplish the object sought, is a vertically-sliding rod 16, mounted in a suitable bracket 17 dependently supported from the sound-conveying tube; the bracket carrying a pair of parallel ear-plates 23, through holes in both of which the rod 16 is free to move vertically, and between which plates a coiled spring 18, encircling the rod, is supplied to bear against a pin 19 to exert a constant tendency to depress the rod vertically. The lower end of the rod 16 is divided

at 20 with a pin 21 between the divided ends, to afford a bearing for a small friction wheel 22, preferably rubber-tired, and which is thus kept in constant contact with the upper
5 face of the inclined plate 15.

The operation of the device is as follows:—

Rotating movement in a horizontal plane being given to the sound-grooved record-tablet, and the point of the stylus or needle
10 brought into operative contact relation thereto, the friction wheel of the spring-controlled rod will then be resting on the face of the inclined plate 15 at or near the highest point thereof. The needle, in the operation
15 of the machine, should move radially over the record in a direction from rim to center thereof; the sound-conveying arm which supports and directs it in such movement, will perform that function by a short arc-like
20 swinging movement in a horizontal plane, in a certain and positive manner by the action of the spring-actuated friction wheel co-acting with the inclined plane; so that during the rotation of the tablet the movement of
25 stylus over the tablet is rendered certain and positive, without any aid from the record itself, as before relied on, and moreover the needle is kept in close operative contact with the walls of the sound-grooves on the tablet.

30 The distinctive principle embodied in the device is the provision of means such as by a spring-controlled sliding rod, causing a friction wheel to bear against an inclined plane, the wheel being carried by the tubular sound-
35 conveying arm (carrying the sound-box and stylus) causing it to bear in a vertical direction against the face of the record and also to impart a swinging lateral movement to such sound-conveying arm and its adjunctive
40 sound-box and stylus. Hence I do not wish to confine myself to the specific mechanism described embodying this principle of construction and operation, but to include any obviously equivalent substitution therefor
45 operating on the same principle to effect the same result.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:—

1. In a talking machine, the combination 50 of a holder for a disk sound-record and devices for rotating the same and the record thereon, a support, reproducing mechanism including a stylus pivotally mounted thereon, and means independent of the sound-rec- 55 ord and its driving device for yieldingly propelling said mechanism in a plane substantially parallel with the surface of the sound-record so that the stylus thereof may track in and be restrained by the record-groove 60 throughout the several convolutions thereof, said means consisting of two parts one moving with said mechanism and the other stationary with respect thereto, one of said parts having an inclined surface and the 65 other of said parts having a roller coacting with said inclined surface, substantially as set forth.

2. In a talking machine, the combination 70 of a holder for a disk sound-record and devices for rotating the same and the record thereon, a support, reproducing mechanism including a stylus pivotally mounted therein, and means independent of the sound-rec- 75 ord and its driving device for yieldingly propelling said mechanism in a plane substantially parallel with the surface of the sound-record so that the stylus thereof may track in and be restrained by the record-groove throughout the several convolutions thereof, 80 said means consisting of two parts one having a surface inclined relatively to the surface of the sound-record and the other provided with a spring for forcing it into engagement with said inclined surface, sub- 85 stantially as set forth.

In testimony whereof, I have hereunto affixed my signature this 27th day of June A. D. 1907.

LUTHER T. HAILE.

Witnesses:

A. M. BIDDLE,
JAS. C. WOBENSMITH.