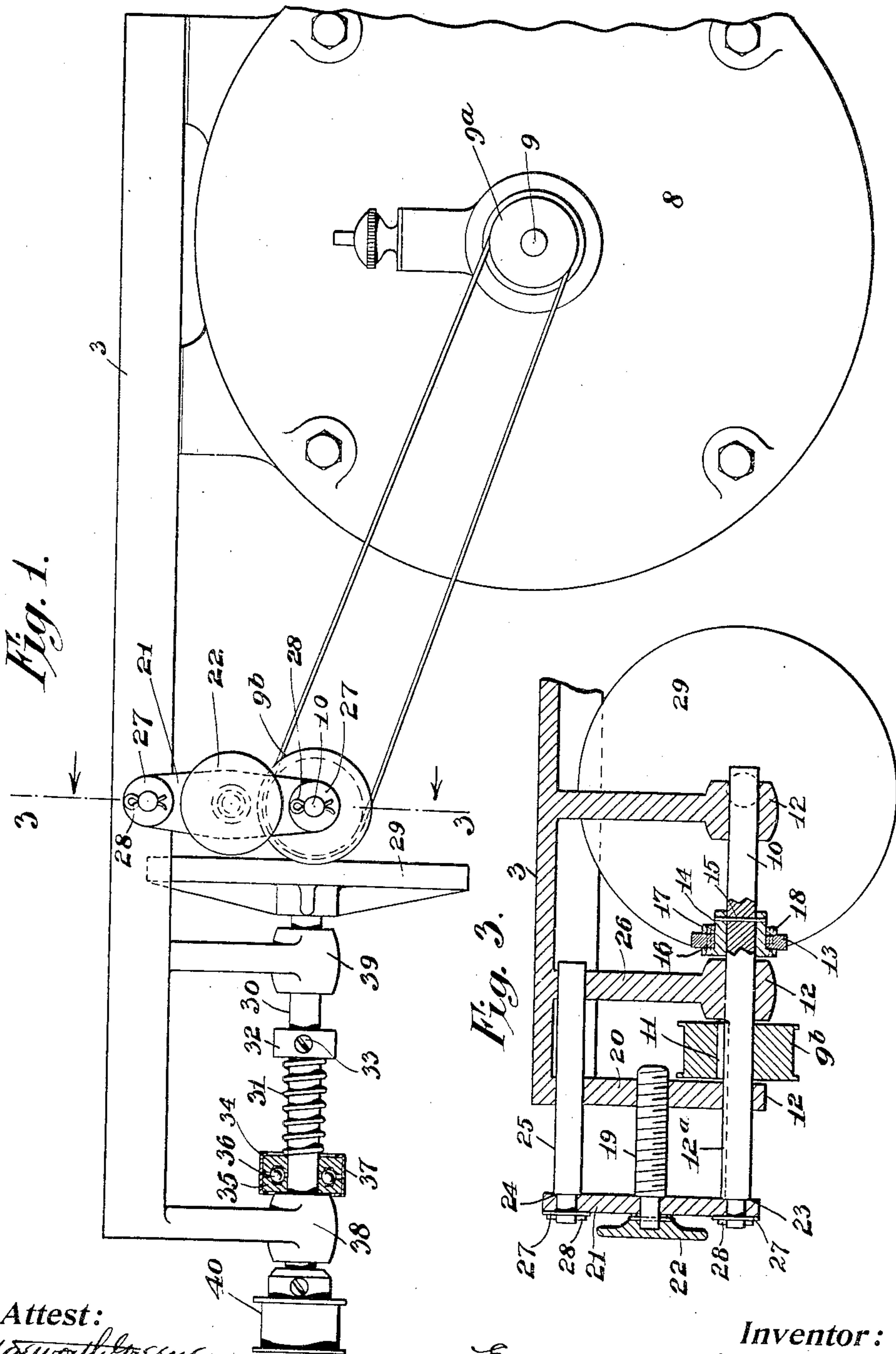


917,514.

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DRIVING MECHANISM FOR PHONOGRAPHS.
APPLICATION FILED SEPT. 14, 1905.

Patented Apr. 6, 1909.

4 SHEETS—SHEET 1.



Attest:
Edgeworth
De los Holden

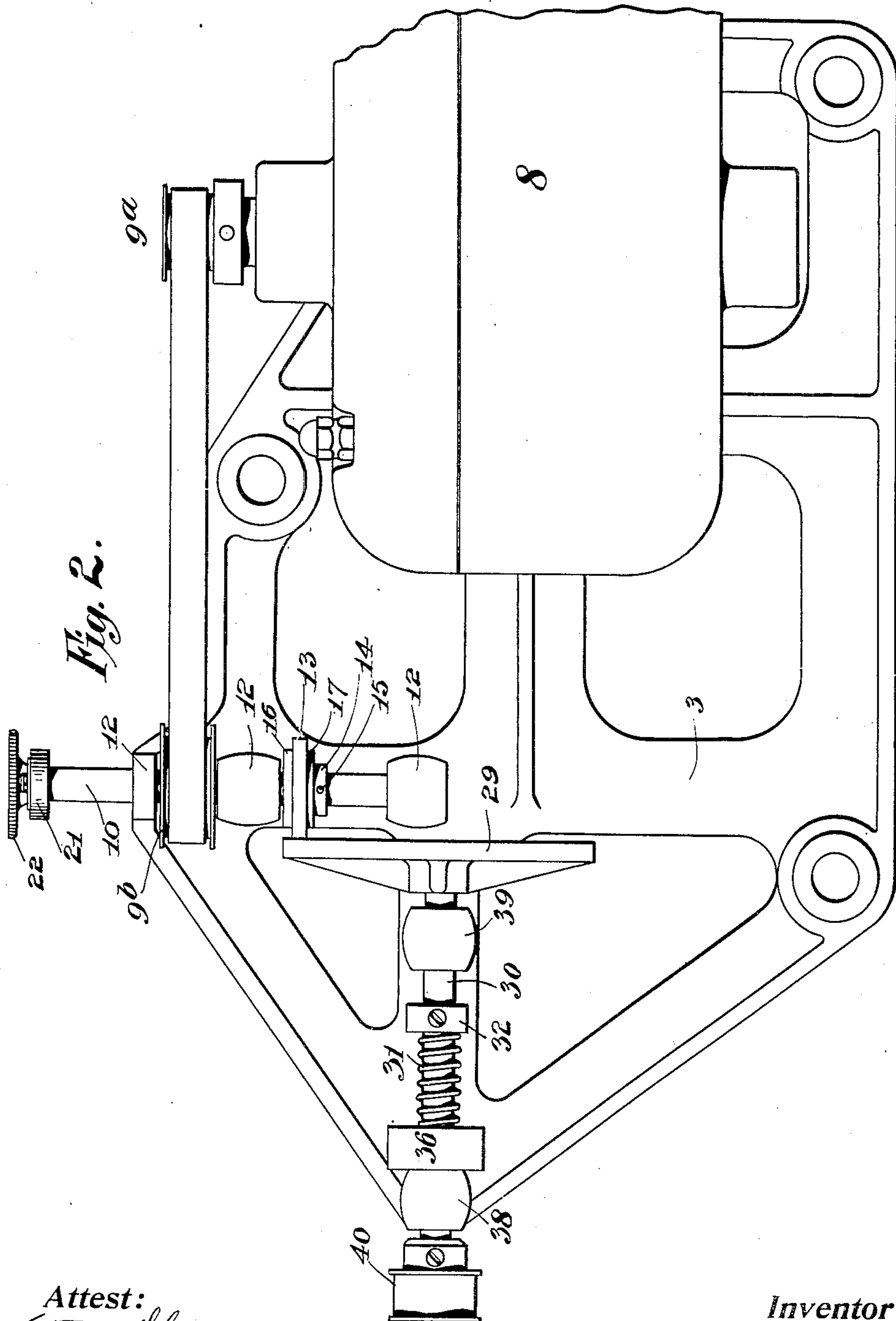
Inventor:
Edward L. Aiken
by *Frank L. Aiken* Att'y.

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4 SHEETS—SHEET 2.



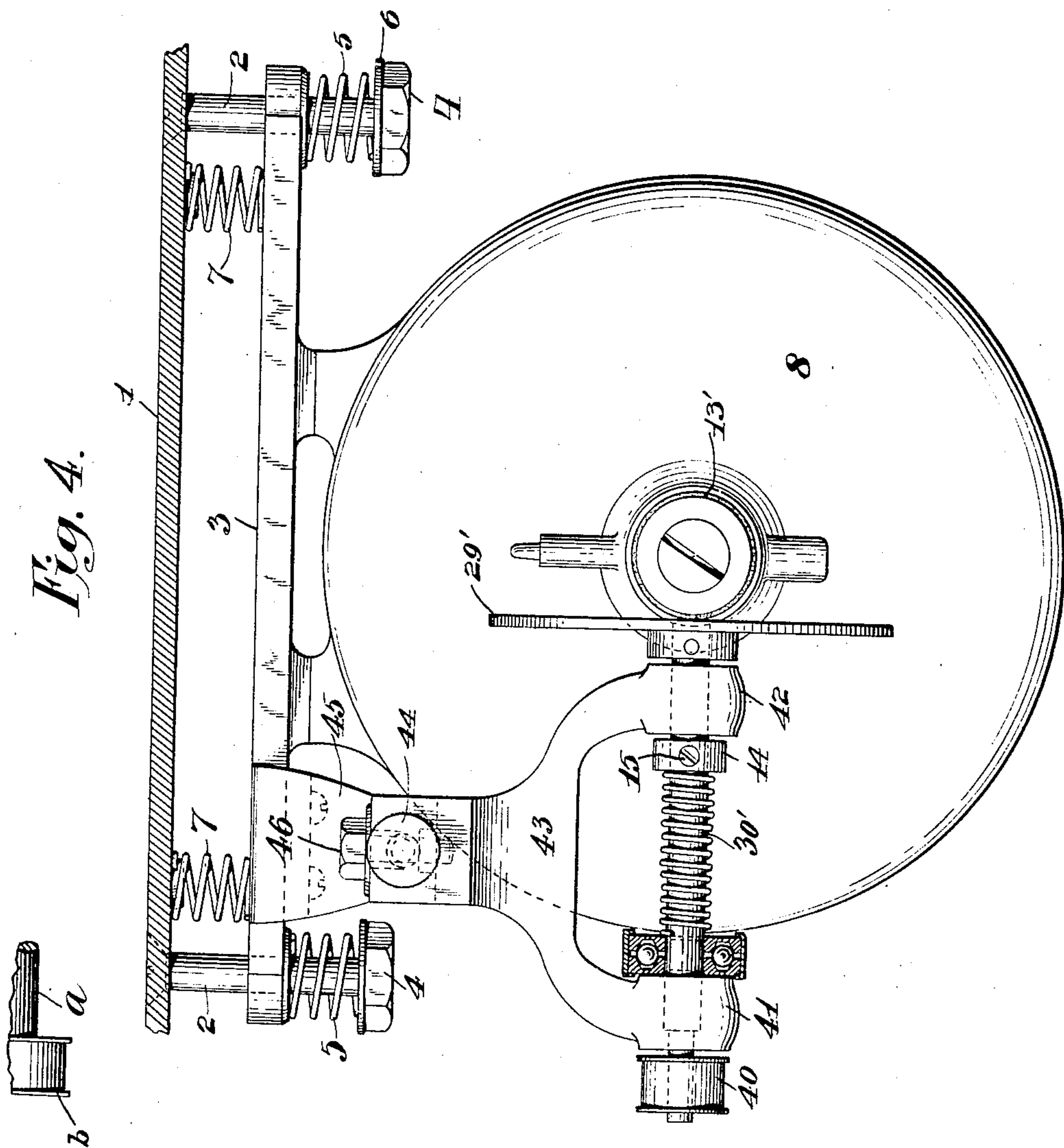
Attest:
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4 SHEETS—SHEET 3.



Attest:
Edgeworth Burns
Delos Holden

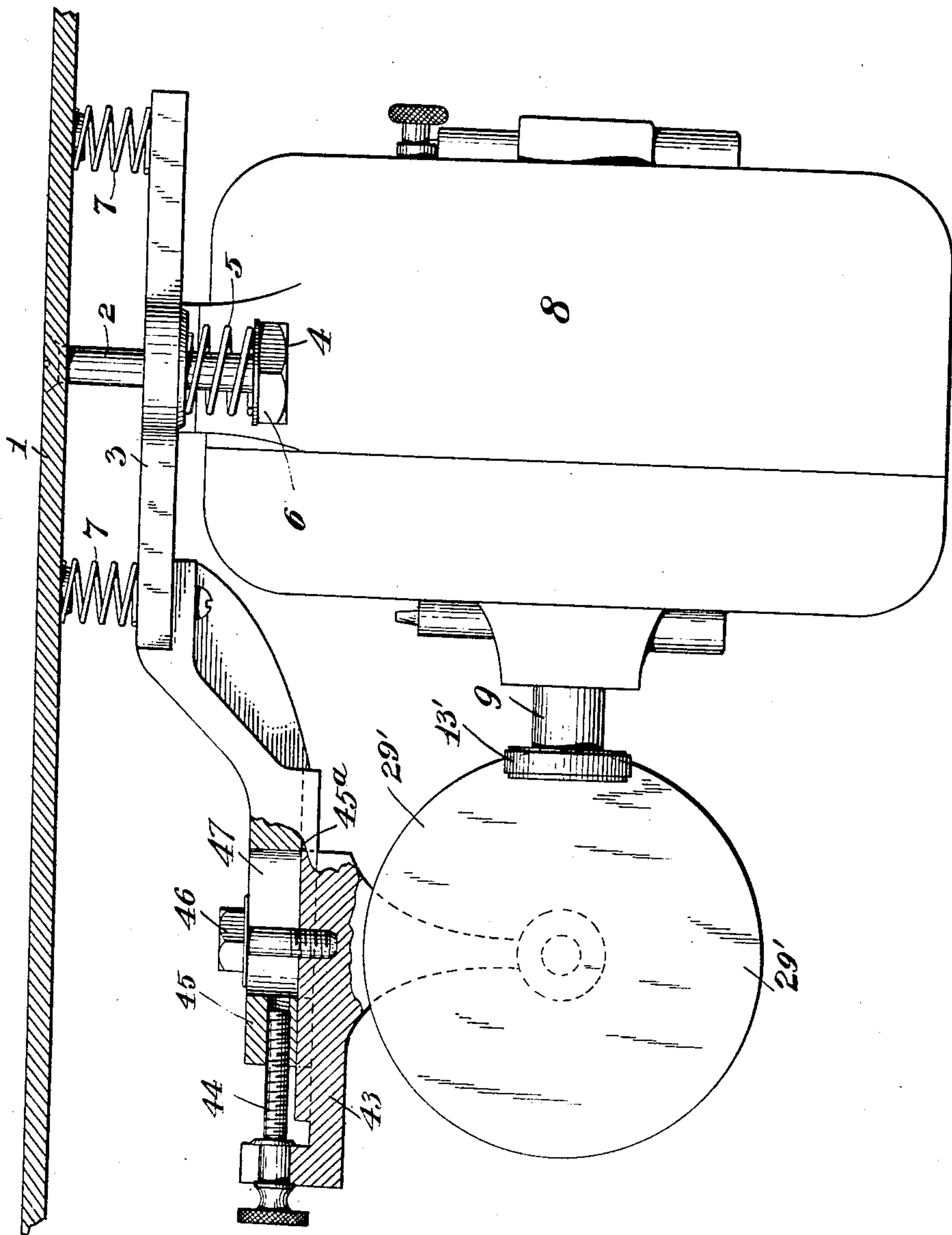
Inventor:
Edward L. Aiken
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4 SHEETS—SHEET 4.

Fig. 5.



Attest:
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UNITED STATES PATENT OFFICE.

EDWARD L. AIKEN, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO NEW JERSEY PATENT COMPANY, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

DRIVING MECHANISM FOR PHONOGRAPHS.

No. 917,514.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed September 14, 1905. Serial No. 278,364.

To all whom it may concern:

Be it known that I, EDWARD L. AIKEN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Driving Mechanism for Phonographs, of which the following is a description.

My invention relates to phonographs and has for its object the provision of means for driving the mandrel or main shaft of the instrument at the proper speed by means of an electric motor, although the motor be used on circuits which differ from each other in voltage, or in the case of alternating currents in frequency, whereby various speeds of the driving motor are produced.

A further object is the supporting of the motor and driving mechanism, including the speed adjustment, in such a manner that the vibrations set up by the operation of these parts will not be communicated to the body of the instrument.

Another object is to so arrange the parts that the adjustment for changes in speed can be made without altering the distance between the pulley on the main shaft and the pulley from which it derives its power, whereby the necessity of removing or adjusting the driving belt when adjusting for different motor speeds is avoided.

Reference is hereby made to the accompanying drawings in which—

Figure 1 is a front elevation partly in section of the motor, motor frame and driving gear constructed in accordance with my invention. Fig. 2 is a bottom plan view of Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a front elevation showing a modification of my invention and showing also the means for supporting the motor frame from the top or bed plate of the phonograph. Fig. 5 is a view of Fig. 4 looking from the right.

I have found that in case the driving motor of a phonograph is supported rigidly from the bed plate of the instrument, an objectionable noise will be created, due to mechanical vibrations transmitted to the bed plate from the motor and driving gear. Such vibrations are transmitted, even when cushions of rubber or similar material are introduced between the motor frame and bed plate. I have therefore proposed to support the motor frame by floating it between pairs

of springs so that there will be one or more springs both above and below the motor frame and no rigid connection between the motor frame and the said top plate. This feature is made use of in the structure herein illustrated and is broadly claimed in Patent No. 798,478, dated August 29, 1905.

The top or bed plate 1 of the phonograph is provided with depending bolts 2. These bolts pass loosely through the motor frame 3 and carry at their lower ends supporting nuts 4. Surrounding the bolts 2 are coil springs 5 which rest upon washers 6 and form supports for the motor frame 3. Above the motor frame and between its top surface and the lower surface of the plate 1, I introduce coil springs 7, whereby the frame 3 is elastically supported as hereinbefore referred to.

The motor 8 is an electric motor of any approved form and is wound for either direct or alternating current, according to the circuit from which it is to derive its power.

The features described are common to both devices illustrated in the drawings.

In the device of Figs. 1, 2 and 3 the motor shaft 9 is provided with a pulley 9^a which is belted to a pulley 9^b mounted on a shaft 10. The shaft 10 is journaled in bearings 12 carried by the motor frame 3, and is longitudinally movable in its bearings, and with respect to the pulley 9^b which drives the shaft through a spline 11 in engagement with the groove 12^a. The shaft 10 is provided with a friction wheel 13 of suitable material, such as soft rubber which is mounted upon a sleeve 14 secured to the shaft 10 in any suitable manner as by a pin 15. The friction disk 13 is held between a flange 16 integral with the sleeve 14 and a ring or washer 17, the parts being held together by a number of rivets or bolts 18. The longitudinal adjustment of the shaft 10 is effected by means of an adjusting screw 19 threaded in the web 20 of the frame 3, passing loosely through a yoke 21, and carrying at its outer end a milled head 22. The yoke 21 bears against a shoulder 23 of the shaft 10 and against a similar shoulder 24 of a guide pin 25 which slides through openings in the webs 20 and 26 of the frame 3. Washers 27 secured by cotter pins 28 secure the yoke 21 on the ends of the shaft 10 and guide pin 25. In frictional contact with the wheel 13 is a disk 29 carried by a shaft 30, which is journaled in bearings 38 and 39 carried by the frame 3. The disk 29 is

pressed against the wheel 13 by a coil spring 31 surrounding the shaft 30. One end of the spring 31 bears against a collar 32 secured to the shaft 30 by a set screw 33; the other end of the spring 31 bears against a cup 34 loose on the shaft 30. A cup 35 is loosely mounted on the shaft 30 and forms with the cup 16 and steel balls 36 a roller bearing for carrying the thrust imposed upon the shaft 30 by the spring 31 which holds the face of the disk 29 in driving contact with the periphery of the friction wheel 13. A cover 37 preferably surrounds the bearing cups 34 and 35. The pressure of the spring 31 holds the cup 35 against the journal 38. Upon the outer end of the shaft 30 is fixed a drive pulley 40, from which the main shaft *a* (Fig. 4) of the phonograph is driven by means of a belt. The longitudinal adjustment of the shaft 10 by means of the adjusting screw 19 varies the relative positions of the friction wheel 13 and the center of the disk 29 and therefore since the speed of the motor 8 and shaft 10 is practically constant it is possible to obtain within certain limits any desired speed of the drive pulley 40, whereby the main shaft of the phonograph may be driven at the proper speed of the motor 8, although the same be used upon electric circuits differing considerably in voltage or in frequency.

In the device of Figs. 4 and 5 the friction wheel 13' is placed directly upon the motor shaft 9 and the countershaft 10 is dispensed with. The changes of the relative positions of the friction wheel and center of the disk 29' are obtained by the adjustment of the latter. This may be effected by mounting the shaft 30' in journals 41 and 42 which are carried by a bracket 43. This bracket is adjustable in a direction parallel to the axis of the shaft 9 by means of an adjusting screw 44 carried by the said bracket and threaded in an arm 45 carried by the motor frame 3. The bracket 43 is supported and firmly held in any desired position of adjustment by the

bolt 46 passing through the slot 47 of the arm 45 and threaded in the bracket 43, the latter being fitted in a guide 45^a formed in the lower surface of the arm 45. Since the adjustment of the bracket 43 and shaft 30' is in a horizontal plane, the distance between the drive pulley 40 and the pulley *b* of the main shaft *a* of the phonograph which is directly above the same will remain practically constant in the various positions to which the shaft 30' may be adjusted.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:

1. In a phonograph or allied talking machine, the combination with the top or bed plate and springs carried thereby, of a motor frame floated between said springs, a motor carried by said frame, a friction wheel driven by said motor, a shaft supported at right angles to the axis of said friction wheel, a disk on said shaft, means for pressing said disk and friction wheel together and means for varying the relative positions of the center of the disk and the point of driving contact of the friction wheel, substantially as set forth.

2. The combination of a motor, a pulley on the motor shaft, a longitudinally movable counter shaft, a pulley thereon, a belt engaging said pulleys, a friction wheel fixed on said countershaft, a guide pin parallel to said countershaft, a yoke connecting the countershaft and guide pin, means connected to said yoke for moving the countershaft longitudinally, a shaft at right angles to said countershaft and a friction disk on said last named shaft, substantially as set forth.

This specification signed and witnessed this 12th day of September 1905.

EDWARD L. AIKEN.

Witnesses:

DELOS HOLDEN,
FRANK L. DYER.