

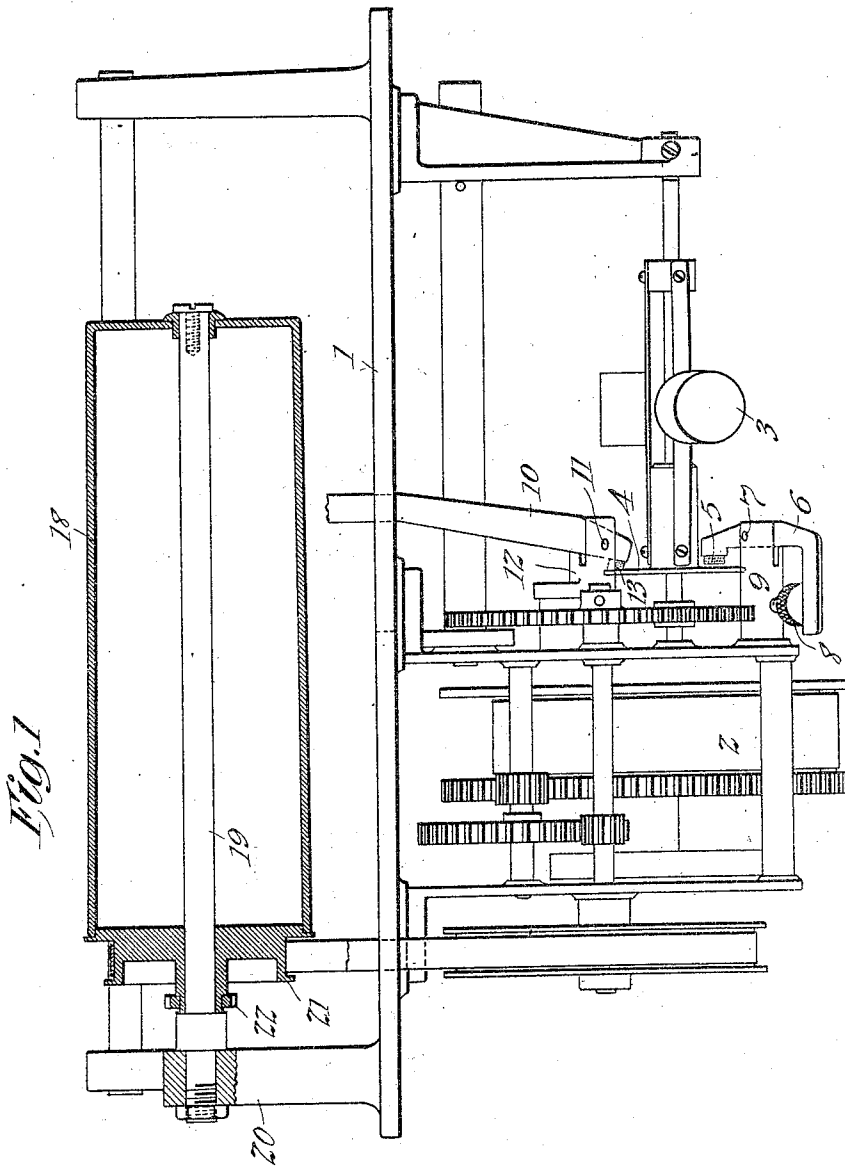
P. WEBER.
PHONOGRAPH.

APPLICATION FILED JAN. 20, 1908.

Patented Oct. 26, 1909.

3 SHEETS—SHEET 1.

937,905.



Witnesses:
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Delos Holden

Inventor:
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Att'y.

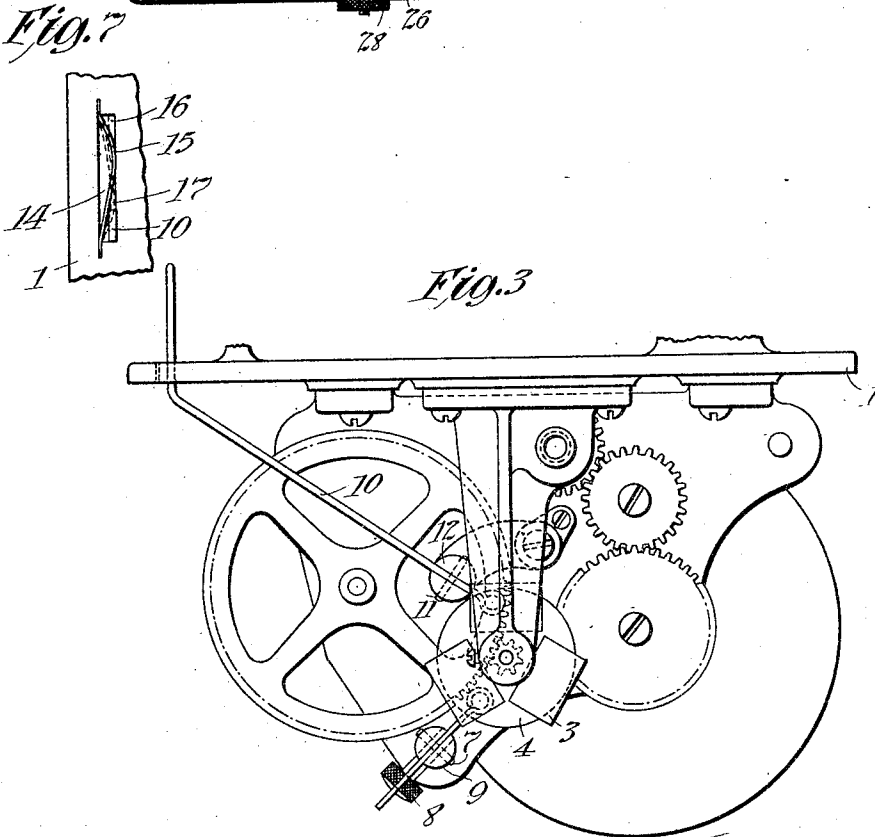
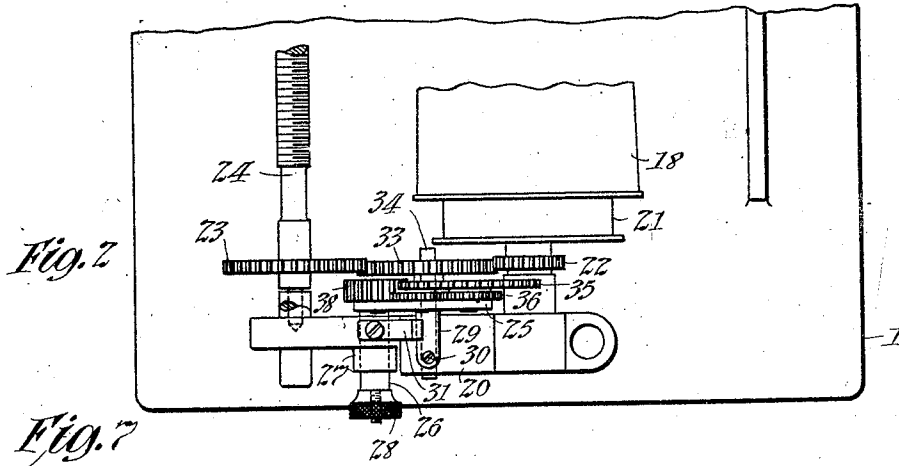
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3 SHEETS—SHEET 2.



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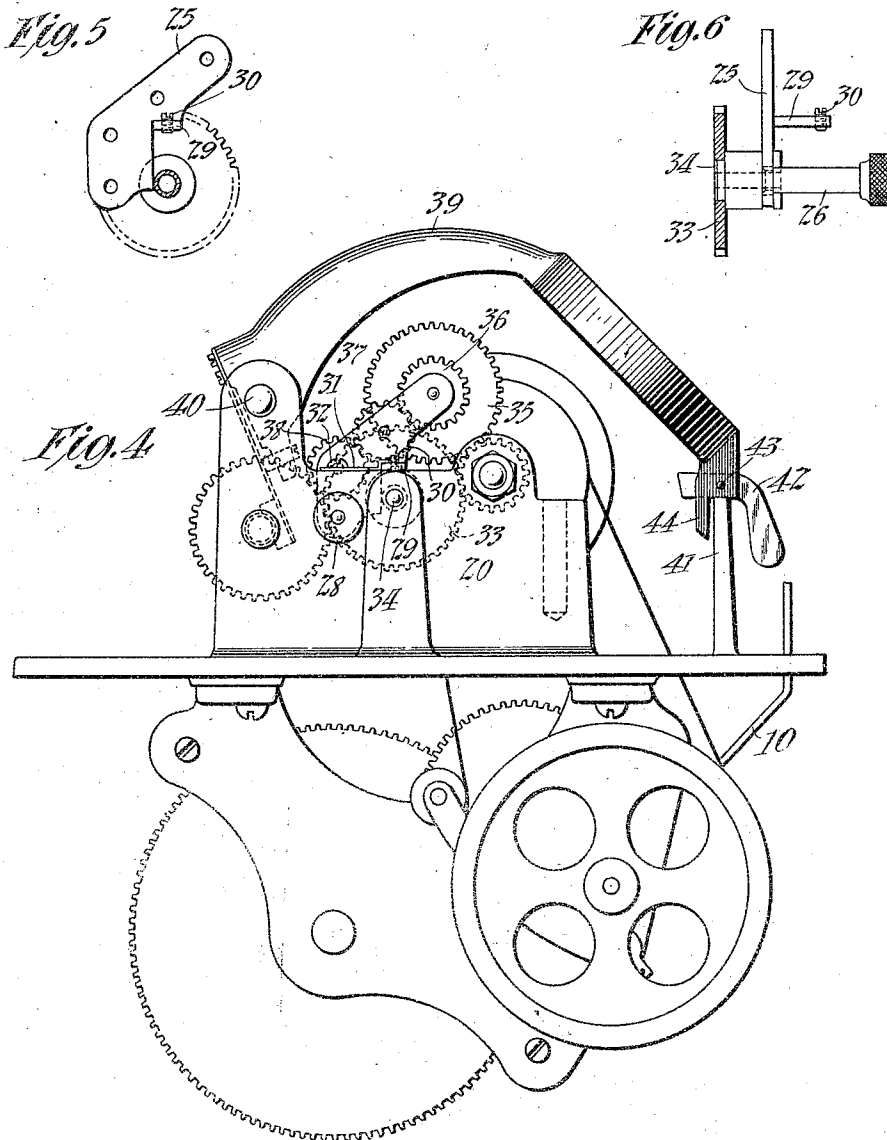
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

PETER WEBER, OF ORANGE, NEW JERSEY, ASSIGNOR TO NEW JERSEY PATENT COMPANY, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PHONOGRAPH.

937,905.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed January 20, 1908. Serial No. 411,828.

To all whom it may concern:

Be it known that I, PETER WEBER, a citizen of the United States, and a resident of Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Phonographs, of which the following is a description.

My invention relates to phonographs and has for its object the provision of (1) means applied to the traveling sound box carriage which permits a slight elevation thereof, such as is necessary in order that the sound record may be applied to or removed from the mandrel, but which prevents the said carriage from being raised more than the slight distance referred to; and (2) an improved form of interchangeable gearing for operatively connecting the mandrel and feed screw shaft, and which can be shifted so as to change the relative speeds of said rotary members, whereby the instrument will be capable of operating upon sound records of different pitch, as for example, sound records having respectively one hundred and two hundred threads per inch.

With these ends in view my invention consists in the features hereinafter described and claimed.

Reference is hereby made to the accompanying drawings, of which—

Figure 1 is a front elevation, partly in section, showing a phonograph constructed in accordance with my invention; Fig. 2, is a plan view of a portion of the phonograph showing the interchangeable gears for operatively connecting the mandrel and feed screw shaft; Fig. 3 is a side elevation of the base of the phonograph and its driving motor as viewed from the right in Fig. 1; Fig. 4 is a side elevation of the phonograph as viewed from the left, Fig. 1; Fig. 5 is a detail side view of the movable frame or support which carries a part of the interchangeable gear mechanism; Fig. 6 is a rear view of the same; and Fig. 7 is a detail plan view of the means for holding the starting and stopping lever.

The phonograph shown comprises a base or bed plate 1, from which the frame work of the driving motor 2 is suspended. The said motor is preferably a spring motor comprising the usual spring barrel, counter-shafts, gears and governor shaft to which the governor is applied, and which comprises centrifugal weights 3 and a slidable

friction disk 4. The speed of the motor is regulated by a friction pad 5 of felt or other suitable material, which is secured to one end of an L shaped lever 6, which is pivoted at the point 7 to the post 9 carried by the frame of the motor. The other arm extends immediately in front of the head of an adjusting screw 8, which is threaded in the post 9. As the screw 8 is screwed into the post 9 it permits the friction pad 5 to be moved away from the disk 4, and thereby allows the motor to run at an increased speed. A movement of the screw 8 toward the arm of the lever 6 causes the friction pad to move toward the disk 4 and thereby diminishes the speed at which the motor can run; thus a very simple adjustment is provided which permits of the motor running at any definite speed within the range at which it is capable of operating.

The means for starting and stopping the motor consists of a lever 10 pivotally connected at 11 to the post 12 carried by the motor frame, and which carries at its lower end a pad 13, so situated as to be brought into contact with the disk 4, for stopping the motor, said position being illustrated in Fig. 1. When the upper end of the lever 10 is moved toward the left, the pad 13 will be withdrawn from engagement with the disk 4, and the motor will thereupon start. The lever 10 passes through a slot 14 (see Fig. 7) formed in the bed plate 1. A flat spring 15 is secured in the said slot, the spring being in the form of a bow, the ends of which are at one side of the slot and the middle of which presses against the opposite side of the slot, thus forming two spaces 16 and 17 each of which is adapted to receive the end of the lever 10. The spring holds the lever firmly in position at either end of the slot, and at the same time readily permits the lever to be moved from one extreme position to the other, one position being indicated in full lines, Fig. 7; and the other in dotted lines.

The means here described for regulating the speed and the starting and stopping of the motor are not here claimed.

The phonograph also comprises a mandrel 18 rotatably supported in any suitable manner, as for example, the ends of the mandrel may be journaled upon a horizontal rod 19, which is bolted at one end to the upright 20, formed integral with the base 1, and the

mandrel is provided with a pulley 21 over which the driving belt from the motor runs.

A spur gear 22 is fixedly secured to the mandrel, and there is a spur gear 23 fixed to the feed screw shaft 24, which is rotatably supported by the base 1 in any suitable manner. In order to operatively connect the gears 22 and 23 with interchangeable driving mechanism, I provide a frame or support 25 shown in detail in Figs. 5 and 6. This frame is applied to the upright 20 of the base 1, and is movably supported thereby in the following manner: The pin 26 which extends outward from the frame 25 passes through a boss 27 integral with the upright 20, and the same is provided with a removable head 28 which acts as a stop for limiting the inward movement of the said frame, the outward movement thereof being limited by the engagement of the main body of the frame with the upright 20. The frame 25 is also provided with a projecting arm 29 in whose extremity is threaded a screw 30 which is adapted to bear against the upper surface of the upright 20, and which provides for a slight angular adjustment of the frame 25 around the pin 26 as an axis. The end of the screw 30 is pressed against the surface of the upright 20 by means of a spring 31, which is secured to said upright by the screw 32, and whose free end is bent into the shape clearly shown in Fig. 4, so as to press downward upon the arm 29 when the same is elevated by the adjusting screw 30. The spring 31 also acts as a guide for said arm 29 when the frame 25 is moved in and out for the purpose of shifting the gears carried thereby. The said gears comprise two sets, one set consisting of a single spur gear 33 rotatably mounted upon a stud 34 carried by said frame 25 and adapted to operatively connect the gears 22 and 23 when the frame 25 is in its extreme outward position as shown in Fig. 2. The other set consists of a train of spur gears 35, 36, 37 and 38 and said train is so arranged as to operatively connect the gears 22 and 23 when the frame 25 is in its extreme inward position.

The various gears are so proportioned that when the gear 33 is in mesh with the gears 22 and 23, the feed screw shaft 24 will be driven at the proper speed for operatively feeding the sound box carriage 39 with respect to a sound record, the pitch of whose record groove is one one-hundredths of an inch, and when the gear train 35, 36, 37 and 38 is in operative connection with the gears 22 and 23 the feed screw shaft 24 will be rotated at a speed suitable for operatively feeding the sound box carriage with respect to a record the pitch of which is one two-hundredths of an inch.

In order to shift the gearing from the position shown in Fig. 2, all that is neces-

sary to do is to move the frame 25 inward by pushing upon the head 28 of the pin 26, so that the gear 33 will be moved out of engagement with the gears 22 and 23, and the gear train 35, 36, 37 and 38 will be brought into operative relation with said gears, and in order to provide for slight variations in the position of the frame 25, which would tend to prevent the gears from properly meshing with the gears 22 and 23, the angular adjustment of the frame 25, by means of the screw 30, as previously described, is provided.

The sound box carriage 39 is sleeved at its rear upon the guide rod 40, and its forward end rests upon the straight edge or track 41, a lift lever of the usual form being pivoted upon the pin 43 and serving to elevate the said carriage a sufficient distance to cause the stylus of the reproducer or recorder to clear the surface of the sound record, in order that the record may be removed from the mandrel or applied thereto. Further upward movement of the carriage is, however, prevented by reason of the engagement with the track 41 of the arm 44, which depends from the carriage as shown in Fig. 4, and is so formed that its extremity will impinge against the rear surface of the track 41, in case the attempt is made to raise the carriage beyond the position to which it may be elevated by the lift lever 42, thus preventing the carriage 39 from being swung completely around upon the rod 40, or into such a position as would expose the feed nut and its supporting spring.

Having now described my invention, what I claim is:

1. In a phonograph, the combination of the guide rod 40 and sound box carriage sleeved thereon, said carriage being movable vertically sufficiently to enable the recording or reproducing stylus to clear the record surface, and means for preventing further vertical movement of the said carriage, substantially as set forth.

2. In a phonograph, the combination of the guide rod 40 and sound box carriage sleeved thereon, of a track 41, upon which the forward end of the said carriage is supported, and a projection 44 secured to said carriage and so situated as to impinge against said track 41 and prevent vertical movement of said carriage beyond that necessary to allow the reproducer or recorder stylus to clear the record surface, substantially as set forth.

3. In a phonograph, the combination with the rotating mandrel, feed screw and traveling carriage, of a support provided with two sets of gears for operatively connecting said mandrel and feed screw, said support being movable in the direction of the axes of said gears so as to bring each set thereof into and out of driving relation with said

mandrel and feed screw, substantially as set forth.

4. In a phonograph, the combination with the rotating mandrel, feed screw and traveling carriage, of spur gears 22 and 23 fixed to said mandrel and feed screw, and a movable support provided with two sets of gears each of which sets is movable into and out of driving relation with said gears 22 and 23, substantially as set forth.

5. In a phonograph, the combination with the rotating mandrel, feed screw and traveling carriage, of spur gears 22 and 23 fixed to said mandrel and feed screw, a movable support provided with two sets of gears each of which sets is movable into and out of driving relation with said gears 22 and 23, and means for adjusting said support in a direction transverse to its line of movement, substantially as set forth.

6. In a phonograph, the combination with the rotating mandrel, the feed screw and gears on the same, of gear connections for connecting the same, and a support 25 for the said interconnecting gears, movable in a direction parallel to the axis of the mandrel, means for adjusting said support in a direction transverse to its direction of movement, and a spring 31 which operates as a guide for the support during its in and out

movement, and which opposes the transverse adjustment of the same, substantially as set forth.

7. In a phonograph, the combination of the base having an upright, the rotating mandrel and feed screw shafts supported thereby, and gears on the same; a gear supporting frame movably supported by said upright and provided with gears for inter-connecting the gears on the said shafts, and with an arm or extension 29, an adjusting screw 30 and a spring 31, substantially as set forth.

8. In a phonograph, the combination with the base, the rotating mandrel and feed screw shafts and gears on the same, of the pivotal gear support 25 and gears carried thereby for inter-connecting the gears on the said shafts, the said pivotal gear support being movable in a direction parallel to the axis of the mandrel, and means for angularly adjusting the same, substantially as set forth.

This specification signed and witnessed this 13th day of January, 1908.

PETER WEBER.

Witnesses:

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