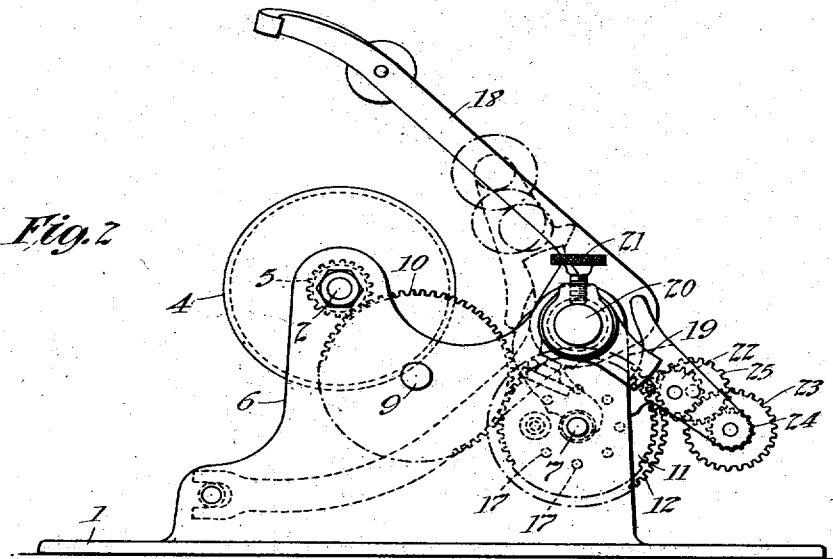
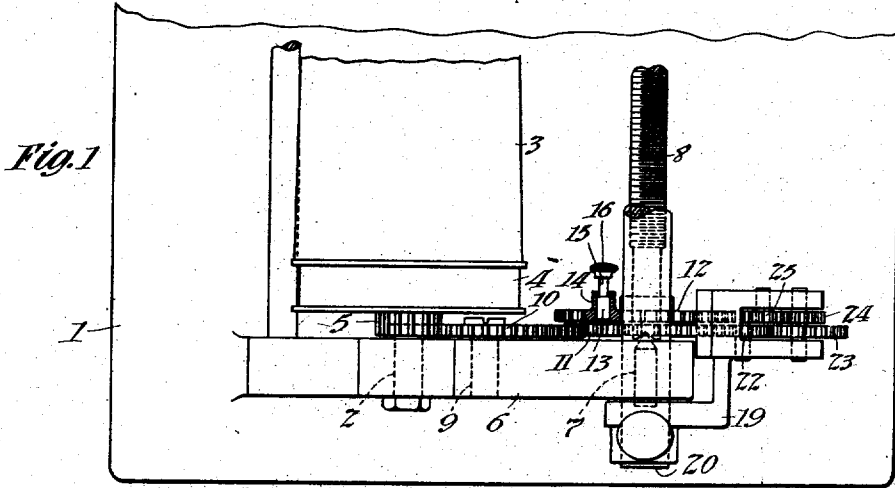


J. F. OTT.
PHONOGRAPH.

APPLICATION FILED JAN. 20, 1908.

936,265.

Patented Oct. 5, 1909.



Witnesses:
Frank H. Davis
Delos Holden

Inventor:
John F. Ott
by Frank H. Davis
Atty.

UNITED STATES PATENT OFFICE.

JOHN F. OTT, OF ORANGE, NEW JERSEY, ASSIGNOR TO NEW JERSEY PATENT COMPANY,
OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PHONOGRAPH.

936,265.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed January 20, 1908. Serial No. 411,833.

To all whom it may concern:

Be it known that I, JOHN F. OTT, 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 of the type wherein the sound box is carried on a traveling carriage to which a progressive movement is imparted by means of a rotating feed screw, so that the reproducer or recorder stylus traces a spiral path with respect to the record surface. It has been the usual practice for many years to provide a feed screw of fine pitch which advances the traveling carriage a distance of one one-hundredth of an inch for each revolution of the mandrel. More recently, however, it has been found possible to manufacture a sound record in which the record groove has two hundred turns or threads to the inch, so that it is desirable to provide a phonograph in which the feed of the carriage will be suitable for operating upon a record of this description. In view of the fact, however, that there are already thousands of phonographs in use in which the feed screw advances the carriage one one-hundredth of an inch per mandrel revolution, and a vast number of records are also in use having a pitch of one one-hundredth of an inch, it is desirable to provide means which may be readily applied to such phonographs whereby the feed screw may be driven at one-half the speed at which it has heretofore been driven, such means also permitting the driving of the feed screw at its usual speed, so that the phonograph can be used interchangeably with sound records having either one hundred or two hundred threads per inch, and my invention has for its object the provision of interchangeable means of this character which may be readily applied to a phonograph and in which, when so applied, the parts may be readily shifted with respect to each other, so as to drive the feed screw at the desired rate of speed.

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

Figure 1 is a plan view, partly in section, showing a portion of a phonograph constructed in accordance with my invention, and Fig. 2 is an end elevation of the same.

In both views corresponding parts are designated by the same reference numerals.

The phonograph shown is of a well-known form and comprises a base 1, to which is secured a fixed horizontal pin or journal 2, upon which the mandrel 3 is rotatably supported, the same being adapted to be driven by the pulley 4 secured to one end of the mandrel and which receives the driving belt from the phonograph motor. A spur gear 5 is rigidly secured to the pulley 4 and rotates therewith. The pin 2 is secured to the upright 6 which is integral with the base 1 and said upright also carries the pivot pin 7 which engages one end of the feed screw shaft 8, and thereby rotatably supports the same in conjunction with a similar pin placed at the other end of the shaft (not shown).

A pin 9 is carried by the upright 6 and rotatably supports a spur gear 10 which meshes with the gear 5. The gear 10 also meshes with a gear 11 loosely mounted on the shaft 8. There is another gear 12 which is fixed upon the said shaft and which is adapted to be locked to the gear 11 by means of a pin 13 which occupies a hollow boss 14 which may be integral with the gear 12. This pin is formed with a shoulder which prevents the same from being removed from the said boss and with a reduced portion on the end of which is a small head 16, by which the pin may be operated. In the position shown in Fig. 1, the gears 11 and 12 are disconnected. The gear 11 is provided with a number of holes 17 arranged concentrically, said holes being at the same distance from the center of the shaft 8 as the pin 13, and being of a size suitable to receive the end of the pin, so that when the pin is moved longitudinally its end will enter one of the said holes and will lock the gears 11 and 12 together. When thus arranged the shaft 8 will be driven from the pulley 4 through the gears 5, 10, 11 and 12, and the same are so proportioned as to drive the shaft 8 at a speed suitable for traversing the sound box carriage 18 when operating upon a record having two hundred threads to the inch.

In order that the shaft 8 may be driven at twice the speed, or a speed suitable for operating on the ordinary record of one hundred threads per inch, I provide a frame

or support 19 which is mounted upon the end of the cross rod 20 which projects beyond the upright 6, said frame being angularly adjustable upon said rod and adapted to be clamped in fixed position by means of a set screw 21. This frame carries a gear train composed of spur gears 22, 23, 24 and 25, the gears 23 and 24 being rigidly mounted on one stud in the frame 19, gears 22 and 25 being mounted on parallel studs, gear 22 meshing with gear 23, and gear 24 meshing with gear 25. It is obvious that the gears can be mounted in any convenient manner so that gears 23 and 24 rotate together, and gears 22 and 25 rotate independently of each other. When the frame 19 occupies the position shown in the drawing the gear 22 meshes with the gear 11, and the gear 25 meshes with the gear 12.

In this position, in which, of course, the pin 13 is withdrawn from the hole 17, the pulley 4 drives the screw shaft 8 through the gears 5, 10, 11, 22, 23, 24, 25 and 12, and the gears are so proportioned that the shaft 8 will be driven at the proper speed for traversing the sound box carriage when operating upon a record having one hundred threads to the inch. Obviously all that is necessary to do, in order to produce the desired arrangement for operating upon a record having two hundred threads to the inch is to loosen the set screw 21 and move the frame 19 through a sufficient angle to release the gears 22 and 25 from the gears 11 and 12, then tighten up the set screw 21 to hold the frame in this position, then move the pin 13 inward until its end enters one of the openings 17 of the gear 11, thereby locking the gears 11 and 12 together.

In the claims, the term spindle is used to denote a small cylindrical chamber which is either a revolving member, as in the case of the feed screw shaft or spindle, or is fixed or non-revolving, as in the case of the stationary support on which the mandrel rotates, or in the case of the guide rod, which supports the traveling carriage.

Having now described my invention, I claim:

1. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a supporting frame at one end of said members, of a spindle supported by said frame, a support pivotally mounted on said last named spindle, gear means carried by said support, and an incomplete gear train connecting said mandrel and feed screw spindle, said support being movable to insert the gear means carried thereby into the gear train to complete the same, substantially as described.

2. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a

supporting frame at one end of said members, of a cross rod supported by said frame, a support pivotally mounted on a prolongation of said cross rod beyond the frame, gear means carried by said support, and an incomplete gear train connecting said mandrel and said feed screw spindle, said support being movable to insert the gear means carried thereby into the gear train to complete the same, substantially as described.

3. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a supporting frame at one end of said members, of a rod supported by said frame, a support pivotally mounted on said rod, gear means carried by said support, fast and loose gears co-axial with one of said members, gear means connecting said other member with said loose gear, said gear means carried by said support being movable by the pivotal movement of the support to connect and disconnect said fast and loose gears, substantially as described.

4. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a supporting frame at one end of said members, of a rod supported by said frame, a support pivotally mounted on said rod, gear means carried by said support, fast and loose gears co-axial with one of said members, gear means connecting said other member with said loose gear, said gear means carried by said support being movable by the pivotal movement of the support to connect and disconnect said fast and loose gears, and means for locking together said fast and loose gears, substantially as described.

5. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a supporting frame at one end of said members, of a spindle carried by said frame, a support movably mounted on said last named spindle, gear means carried by said support, fast and loose gears co-axial with one of said members, gear means connecting said other member with said loose gear, said gear means carried by said support being movable therewith to connect and disconnect said fast and loose gears, substantially as described.

6. In a phonograph, the combination with the mandrel and feed screw spindle, constituting a pair of revolving members, and a supporting frame at one end of said members, of gears carried by the said members, means for connecting them to drive the feed spindle from the mandrel at a definite ratio, including gear means in mesh with the mandrel gear, a stud carried by said frame, and a pivoted support sleeved thereon carrying a gear train adapted to be brought into

mesh with the feed screw gear and the gear means in mesh with the mandrel gear to drive the feed spindle from the mandrel at a different ratio, substantially as described.

- 5 7. In a phonograph, the combination with a plurality of parallel transverse spindles, a mandrel carried by one of said spindles, and one of said spindles having a feed screw cut thereon, of a support pivotally mounted
10 on one of said spindles, gear means carried by said support, and an incomplete gear

train connecting said mandrel and feed screw, said support being movable to insert the gear means carried thereby into the said gear train to complete the same, substantially as described. 15

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

JOHN F. OTT.

Witnesses:

H. H. DYKE,
FRANK W. LEWIS.

Correction in Letters Patent No. 936,265.

It is hereby certified that in Letters Patent No. 936,265, granted October 5, 1909, upon the application of John F. Ott, of Orange, New Jersey, for an improvement in "Phonographs," an error appears in the printed specification requiring correction as follows: Page 2, line 41, the word "chamber" should read *member*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of November, A. D., 1909.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

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