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Fig. 1

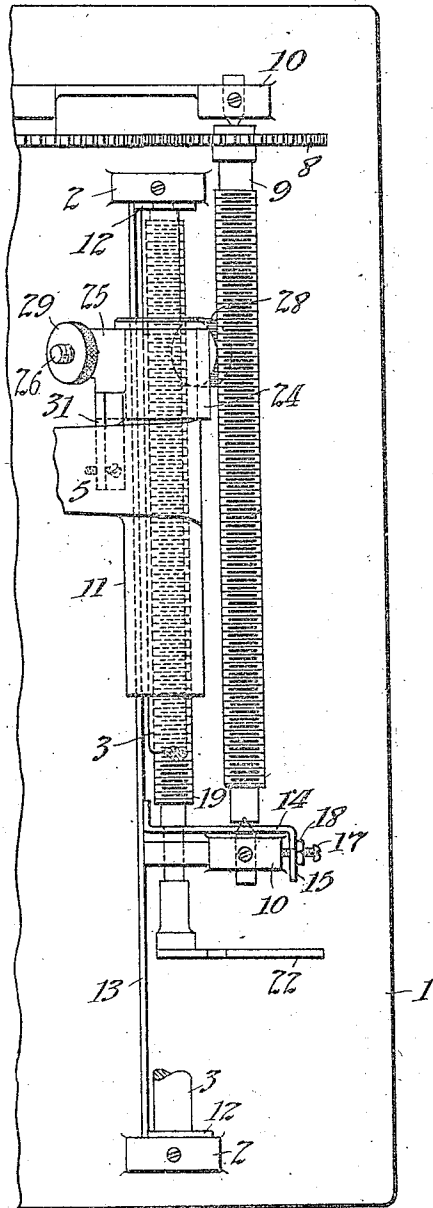


Fig. 4

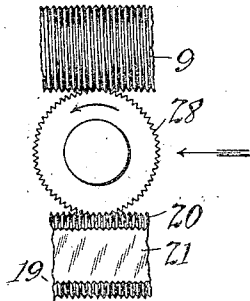
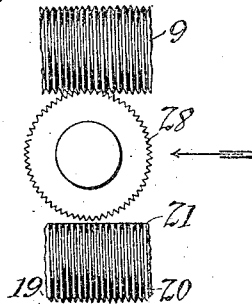


Fig. 5



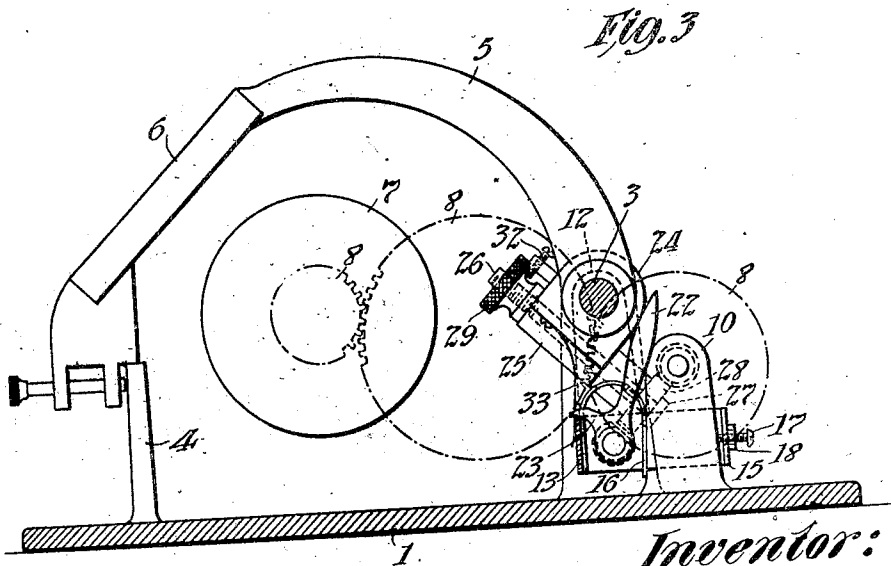
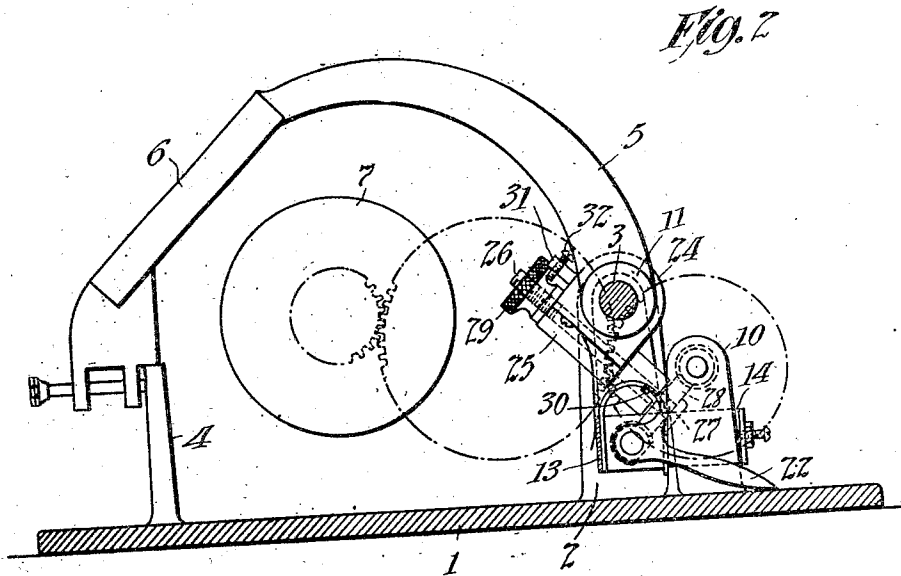
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FEEDING MECHANISM FOR PHONOGRAPHS.
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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR PHONOGRAPHS.

936,273.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed January 20, 1908. Serial No. 411,831.

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, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Feeding Mechanism for Phonographs, of which the following is a description.

My invention relates to various new and useful improvements in phonographs, and particularly to mechanism by which a variable feed may be imparted to the carriage, whereby the instruments may be employed for the reproduction of records, for example, of the present standard pitch of one hundred threads per inch, as well as records of a different pitch, say, two hundred threads per inch.

Broadly considered, the invention relates to feed devices for the purpose of the type disclosed in application of Herman Wolke, filed September 12, 1907, Serial No. 392,480, wherein a traveling nut capable of being locked against rotation engages the ordinary feed screw, whereby the nut when so locked, will be fed in the ordinary way to provide for a movement of the carriage corresponding to the pitch of said screw. When, however, the nut is permitted to rotate and engagement is effected between a part rotated by said nut and a stationary abutment, a differential action takes place and the carriage will be fed at a different speed, the rate thereof depending upon the proportion and ratio of the cooperating elements. The particular feed device shown in said application is illustrated in connection, and was designed for use particularly, with Edison phonographs of the Home type, although obviously not limited to such use.

One of the objects of my present invention is to provide a device for the purpose, which is particularly desirable in connection with phonographs of the Standard type, the mechanism being of such a character that it may be constructed as a separate attachment and applied to existing phonographs by any person of ordinary intelligence and skill.

A further object of the invention is to somewhat simplify the mechanical construction of the device as becomes possible in its application to a phonograph of the Standard type.

In order that the invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a plan view of a portion of a Standard phonograph with my present improvements applied thereto; Fig. 2 as cross-sectional view showing the parts in the position which they occupy when a differential feed movement is applied to the carriage, for instance two hundred threads per inch; Fig. 3 a corresponding view showing the parts in position to be fed directly by the feed screw; Fig. 4 an enlarged detail view illustrating the feed screw, worm, and abutment, in position to effect a differential feed; and Fig. 5 a corresponding view showing the same parts in position to effect a direct feed. In all of these views, corresponding parts are represented by the same numerals of reference.

Although, as I have previously said, my improvements have been particularly designed as an attachment to Standard phonographs, it will be of course understood that they may be readily modified so as to apply to phonographs or other talking machines of any desired type having a feed screw and a movable carriage.

The phonograph shown in the drawings is provided with the usual bed plate 1, standards 2—2, carrying the guide rod 3, the straight edge 4, and with the arm 5 sliding on the guide rod 3, and resting at its forward end on the straight edge 4, and formed with an eye 6, in which the recorder or reproducer is mounted. It is also provided with the usual mandrel 7, which carries the record to be reproduced, or blank to be recorded upon; and driven in the ordinary way from the shaft of the mandrel 7 by gears 8—8, is the feed screw 9, mounted in centers between standards 10—10. With the ordinary Standard phonograph a spring arm extends obliquely downward from the sleeve 11, forming the supporting means for the arm 5, and said spring arm carries at its lower end a nut which engages the feed screw 9, but in applying my present improvements to the phonograph this spring arm and nut are removed.

Hung from the guide rod 3, adjacent to the standards 2—2 are arms 12, connected by an integral bar 13. Secured to this bar

is a bracket 14, the outer end of which at 15 extends across the face of one of the standards 10. Interposed between this standard and the bar 13 is a U-spring 16, which tends to swing the bar away from the standard 10, the arms 12 moving pivotally with respect to the guide rod 3. Extending through the arm 15 on the bracket 14, is an adjusting screw 17, engaging the outer face of the bracket of the standard 10, and provided with a lock nut 18, whereby the position of the bar 13 with respect to the standard 10 may be very closely adjusted. Mounted in the bracket 14 in one of the arms 12, and substantially in line below the guide rod 13 is an abutment 19 for the differential feed, said abutment being provided with a rack portion 20, and with a flat cut-away portion 21. Preferably the abutment is formed of a screw threaded shaft with a portion 21 planed off, as will be understood. The abutment 19 may be turned so as to present either the smooth portion 21, or the rack portion 20 to the worm gear (to be presently described) by means of an arm 22 carried on its extremity and provided with a limiting finger 23, which engages the upper edge of the bar 13 (see Fig. 3) when the abutment is moved in one direction. The arm 22 engages the top of the bed plate 1 (see Fig. 2) when the abutment is moved to its limit in the other direction.

Loosely carried upon the sleeve 11 at one side of the arm 5 is a ring 24, formed with a socket 25 at one side. Mounted in this socket is a pin 26, formed with a head 27 at its lower end. Mounted on the pin between the head 27 and the lower end of the socket 25 is a worm wheel 28. When a differential feed is to be imparted to the carriage, the worm wheel 28 rotates freely on the pin 26, and when a direct feed is to be imparted to the carriage the worm wheel is locked from rotation. This latter effect is secured by providing the pin 26 with a thumb nut 29 at its upper end, so that the pin may be forced upward to clamp the worm wheel 28 between the head 27 and the lower end of the socket 25. The pin is prevented from rotating in any suitable way, as for example by an ordinary pin-and-slot arrangement 30.

Extending out from the ring 24 is an arm 31, provided with an adjusting screw 32, the head of which is adapted to be engaged by the arm 5 (see Figs. 2 and 3) when the parts are in operative position for recording and reproducing sounds. This engagement of the arm 5 with the adjusting screw 32 swings the ring 24 on the sleeve 11 and engages the worm wheel 28 with the feed screw 9. When, however, the arm 5 is elevated to move the recorder or reproducer relatively to the blank or record, a small spring 33 carried by the ring 24 and engaging the bar

13 will move the ring in the opposite direction to disengage the worm wheel 28 from the screw 9, and permit the carriage to be moved freely back and forth in the same way as with the ordinary arrangement when the feed nut is withdrawn from the feed screw for the same purpose. When the arm 22 is moved to the position shown in Fig. 3, the abutment 19 will be turned so as to present the flat portion 21 to the worm wheel 28, and there is sufficient clearance between these parts as to permit the worm wheel to be moved as a whole without rotating with respect to the abutment. During this movement, the worm wheel 28 will be clamped against rotation by tightening the thumb nut 29. Obviously, the movement of the carriage imparted in this way will be a direct feed, since the worm wheel 28 will act like the ordinary nut. If, however, the arm 22 is moved to the position shown in Fig. 2, the rack 20 will be engaged with the arm and by loosening the thumb nut 29 to permit the worm to rotate, a differential movement will be imparted to the carriage, due to the rotation of the worm by the feed screw 9, and its engagement with the rack 20, to slowly traverse the same longitudinally. This differential movement may be of any desired rate, depending of course upon the size and ratio of the parts and in the drawings I have illustrated proportions which will impart to the carriage a movement equivalent to a direct feed of two hundred threads per inch.

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

1. In a feed mechanism for phonographs, the combination with a movable carriage and a feed screw, of a worm wheel movable with the carriage and engaging the feed screw, and a fixed abutment with which the worm wheel engages and with respect to which it is moved longitudinally by reason of its rotation with the feed screw, substantially as set forth.

2. In a feed mechanism for phonographs, the combination with a movable carriage and a feed screw, of a worm wheel movable with the carriage and engaging the feed screw, and a fixed abutment with which the worm wheel engages and with respect to which it is moved longitudinally by reason of its rotation with the feed screw, means for locking the worm wheel from rotation and means for disengaging the abutment from said worm wheel to permit the worm wheel to be moved bodily by the feed screw, substantially as set forth.

3. In a feed mechanism for phonographs, the combination with a movable carriage and a feed screw, of a worm wheel movable with the carriage and engaging the feed screw, and a fixed abutment with which the

worm wheel engages and with respect to which it is moved longitudinally by reason of its rotation with the feed screw, and means for adjusting the abutment with respect to the worm wheel, substantially as set forth.

4. In a feed mechanism for phonographs, the combination with a movable carriage and a feed screw, of a worm wheel movable with the carriage and engaging the feed screw, and a fixed abutment with which the worm wheel engages and with respect to which it is moved longitudinally by reason of its rotation with the feed screw, and means controlled by the carriage for engaging the worm wheel with the feed screw when the carriage is in its operative position and effecting the disengagement of the worm wheel and feed screw when the carriage is elevated, substantially as set forth.

5. In a feed mechanism for phonographs, the combination with a movable carriage and a feed screw, of a worm wheel connected to the carriage and engaging the feed screw, a rack with which the worm wheel engages and means for moving the rack so as to disengage it from the worm wheel, substantially as set forth.

6. In a feed mechanism for phonographs, the combination with a movable carriage, and a feed screw, of a worm wheel connected to the carriage and engaging the feed screw, a rack with which the worm wheel engages and means for moving the rack

axially so as to disengage it from the worm wheel, substantially as set forth.

7. In a feed mechanism for phonographs, the combination of a movable carriage and a feed screw, of a worm wheel connected to the carriage and engaging the feed screw, and a rack mounted in swinging arms and adjustable toward and away from the worm wheel, substantially as set forth.

8. In a feed mechanism for phonographs, the combination of a movable carriage and a feed screw, of a worm wheel connected with the carriage and engaging the feed screw and a rack mounted in swinging arms and adjustable toward and away from the worm wheel, and means for moving the rack so as to engage it and disengage it from the worm wheel, substantially as set forth.

9. In a feed mechanism for phonographs, the combination of a movable carriage and a feed screw, of a worm wheel connected with the carriage and engaging the feed screw and a rack mounted in swinging arms and adjustable toward and away from the worm wheel, and means for moving the rack axially so as to engage it and disengage it from the worm wheel, substantially as set forth.

This specification signed and witnessed this 13 day of Jan. 1908.

JOHN F. OTT.

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