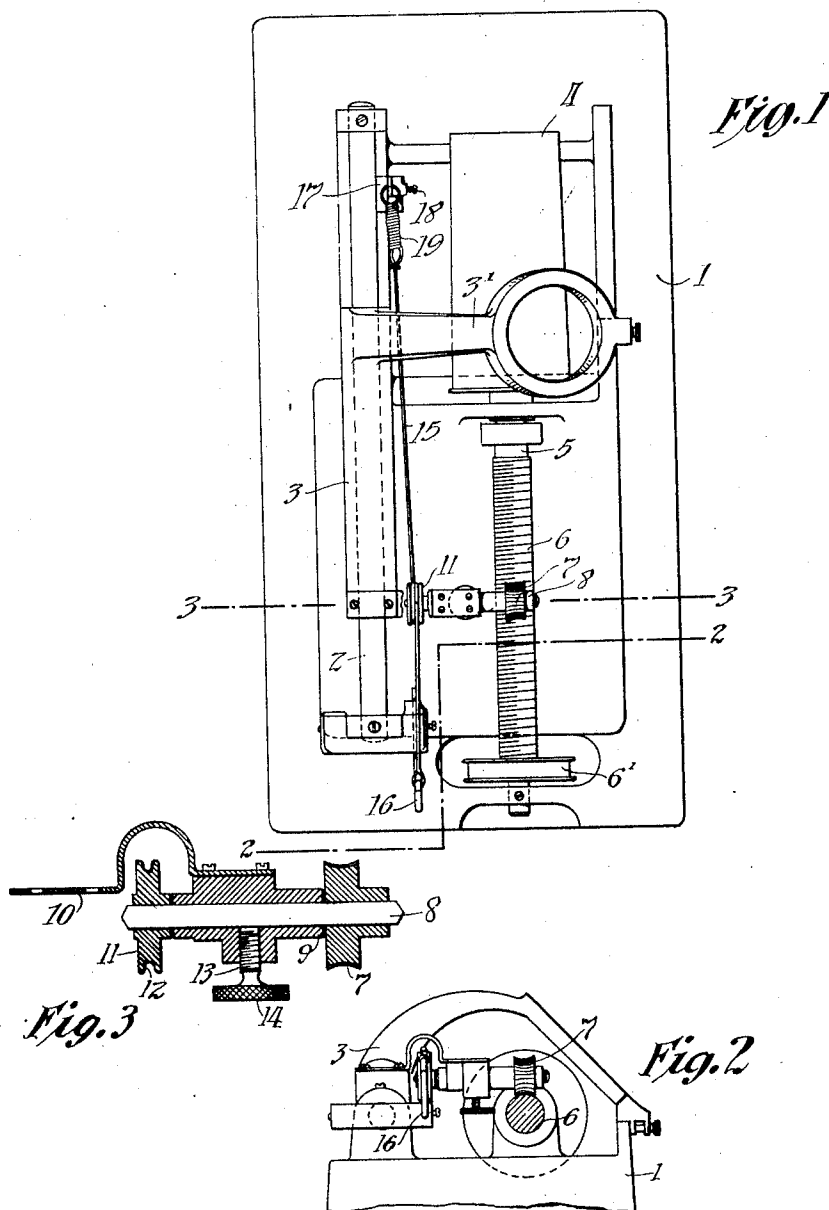


C. N. WURTH.
 FEEDING MECHANISM FOR PHONOGRAPHS AND OTHER MACHINES.
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1,036,403.

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Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES N. WURTH, OF ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THOMAS A. EDISON, INCORPORATED, OF WEST ORANGE, NEW JERSEY, A
CORPORATION OF NEW JERSEY.

FEEDING MECHANISM FOR PHONOGRAPHS AND OTHER MACHINES.

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Specification of Letters Patent.

Patented Aug. 20, 1912.

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To all whom it may concern:

Be it known that I, CHARLES N. WURTH, a citizen of the United States, residing at Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Feeding Mechanism for Phonographs and other Machines, of which the following is a description.

My invention relates to mechanical movements and more particularly to means for imparting a progressive movement to the carriage which carries the reproducer or recorder of a phonograph; whereby the same is fed transversely to the direction of movement of the surface of the record and the stylus traverses a spiral path on the record.

In ordinary phonographs now in use, it has been usual to provide a feed screw having a pitch of substantially one one-hundredths of an inch. As records can now be produced with a very much smaller pitch, preferably one two-hundredths of an inch, and as it is impracticable to manufacture feed screws with so small a pitch, it is my object to provide means whereby the ordinary phonograph may be adapted for the recording or reproduction of records having either of the above, or any other desired pitch. This object I accomplish by the production of improved means whereby the carriage may be advanced either directly by the rotating feed screw, as has hitherto been the practice, or whereby, at the will of the operator, the carriage may be advanced at each revolution of the feed screw, a distance bearing any desired ratio to the pitch of the said screw.

Another object of my invention is to provide a simple attachment adapted to be readily applied to existing phonographs to adapt the same by a simple manipulation for use with records of different pitches.

With these and other objects in mind, my invention consists of the features hereinafter set forth and claimed.

In order that my invention may be more fully understood, attention is hereby directed to the accompanying drawing, forming a part of this specification and in which—

Figure 1 is a plan of a phonograph provided with a feeding device constructed in accordance with my invention; Fig. 2 is an

end elevation of the device shown in Fig. 1, the feed screw being shown in section taken on the line 2—2 of Fig. 1; and Fig. 3 is a section of my improved feeding device taken on the line 3—3 of Fig. 1.

Corresponding parts are designated by the same reference numerals in the several views.

The phonograph shown is of the Edison type and comprises the usual body 1 having a back rod 2 on which the traveling carriage 3 provided with an arm 3' for supporting a recorder or reproducer is movably mounted. The mandrel 4 is mounted upon the main shaft 5 which is provided with a feed screw 6 which, as has been explained, ordinarily has a pitch of one one-hundredth of an inch, although a screw of different pitch may be used. A pulley 6' is secured to the shaft 5.

The present invention comprises a worm wheel 7 for engagement with the feed screw 6, the said worm wheel being secured to one end of a shaft 8 which is supported in a suitable bearing 9, which in turn is carried by the traveling carriage 3. The bearing 9 is detachably connected to the traveling carriage by the resilient member 10. To the opposite end of the shaft 8 from that carrying the worm wheel 7 is secured a pulley 11 having a groove 12 in its periphery. A thumb screw 13 provided with a knurled head 14 is carried by the bearing 9 and is adapted to be brought into contact with the shaft 8 whereby the latter may be secured against rotation. A cord 15 or any other suitable equivalent means is fixed at one end to the spring hook 16 carried by the body 1 and is passed around the pulley 11, the other end of the cord being fixed to the body by means of the block 17 movable along the body and provided with a set screw 18 whereby it may be secured in position. A tension spring 19 is interposed between the end of the cord 15 and the block 17. By means of the adjustable block 17 and the spring 19, any desired amount of tension may be imparted to the cord, the resiliency of the spring preventing the cord from being subjected to excessive strains. As shown in Figs. 1 and 2, the pulley 11 and the cord 15 are located in proximity to the back rod 2, so that the arm 3' may be raised through a considerable angle without interference from the cord 15.

The operation of my device is as follows:—Power being applied to the pulley 6', the feed screw and the mandrel will revolve at a certain speed. When the thumb screw 13 is brought into contact with the shaft 8, the worm wheel is held against rotation, and acts, on the rotation of the feed screw, precisely like an ordinary feed nut; and the carriage is advanced at each revolution of the feed screw a distance equal to the pitch of the said screw. During the operation of the device as described above, the cord 15 slips over the pulley as the worm wheel advances, such operation being facilitated by the resiliency imparted to the cord by the spring 19. When it is desired to employ my improved device with records having a different pitch from that of the feed screw, the thumb screw 13 is moved out of engagement with the shaft 8. The feed screw being then actuated, the worm wheel 7 and pulley 11 are revolved, the pulley 11 is shifted longitudinally of the record by its engagement with the cord 15, and the carriage is advanced at each rotation of the feed screw a distance depending upon the pitch diameters of the worm wheel 7 and the pulley 11.

While I have described my invention as applied to a phonograph for producing the desired feed of the carriage, it is obviously not limited to such use, and may be applied to any mechanism whatever for converting rotary movement into progressive lineal movement.

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

1. In a device of the class described, the combination with a traveling carriage, of means for moving said carriage in the same direction at any one of a plurality of different speeds, said means comprising a flexible member, driving means engaging said member to move said carriage at one of said speeds, and means for rendering said driving means inoperative while the carriage is driven at a different speed, substantially as described.

2. In a device of the class described, the combination with a traveling carriage, of means for moving said carriage in the same direction at any one of a plurality of different speeds, said means comprising a flexible member, rotary driving means engaging said member to move said carriage at one of said speeds, and means for securing said driving means against rotation, said flexible member being adapted to slip with respect to said driving means when the latter is held against rotation, substantially as described.

3. In a device of the class described, the combination of a frame, a carriage movable

thereon, a feed screw and means driven by said feed screw for moving said carriage in the same direction on said frame at any one of a plurality of different speeds, said means comprising a flexible member, rotary driving means engaging said member to move said carriage at one of said speeds, and means for securing said driving means against rotation, said flexible member being adapted to slip with respect to said driving means when the latter is held against rotation, substantially as described.

4. In a device of the class described, the combination with a traveling carriage, of means for moving said carriage in the same direction at any one of a plurality of different speeds, said means comprising a resiliently supported flexible member, driving means engaging said member to move said carriage at one of said speeds, and means for rendering said driving means inoperative while the carriage is driven at a different speed, substantially as described.

5. In a device of the class described, the combination of a frame, a carriage movable thereon, a feed screw, a flexible member secured to said frame, a worm wheel on said carriage and meshing with said feed screw, means actuated from said worm wheel and frictionally engaging with said flexible member for moving said carriage on said frame, and releasable means for holding said worm wheel against rotation, said flexible means being adapted to slip with respect to said first named means when said worm wheel is held against rotation, substantially as set forth.

6. In a device of the class described, the combination of a frame, a carriage movable thereon, a feed screw, a flexible member secured to said frame, a worm wheel on said carriage and meshing with said feed screw, a pulley actuated from said worm wheel and engaged by said flexible member, and releasable means for holding said worm wheel against rotation, substantially as set forth.

7. In a device of the class described, the combination of a frame, a carriage movable thereon, a feed screw, a worm wheel on said carriage and meshing with said feed screw, a pulley actuated from said worm wheel, a cord secured at its ends to said frame and passing over said pulley, and releasable means for holding said worm wheel against rotation, substantially as set forth.

8. In a device of the class described, the combination of a frame, a carriage movable thereon, a feed screw, a shaft mounted in said carriage, a worm wheel secured to said shaft and meshing with said feed screw, a pulley also secured to said shaft, a cord resiliently secured to said frame, and passing over said pulley and a thumb screw mounted in said carriage and adapted to

hold said worm wheel against rotation, substantially as set forth.

9. In a device of the class described, the combination with a feed screw and traveling carriage, of a worm wheel rotatably mounted on said carriage, a flexible member secured to said frame, means rotated by said worm wheel and cooperating with said flexible member, and means for rendering said first named means inoperative, substantially as set forth.

10. In a device of the class described, the combination with a feed screw and traveling carriage, of a worm wheel rotatably mounted on said carriage, a cord resiliently secured to said frame, a pulley rotated from said worm wheel and engaged by said cord, and means for holding said worm wheel against rotation to cause said cord to slip over said pulley and said carriage to be advanced directly by said feed screw, substantially as set forth.

11. In a device of the class described, the combination of a frame, a carriage movable thereon, a feed screw, a worm wheel on said

carriage and meshing with said feed screw, a pulley actuated from said worm wheel, a flexible member passing over said pulley, and means for resiliently securing said flexible member to said frame, said means being adjustable to vary the tension of said flexible member, substantially as described.

12. In a device of the class described, the combination of a frame, a carriage movable thereon, a flexible member, means for resiliently securing said flexible member to said frame, said means being adjustable to vary the tension of said flexible member, means mounted on said carriage and cooperating with said flexible member for moving said carriage on said frame, and means for actuating said last named means, substantially as described.

This specification signed and witnessed this 31st day of January 1911.

CHARLES N. WURTH.

Witnesses:

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