W. M. ALLEN.

SPRING WINDING MECHANISM FOR PHONOGRPAHS.

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1,351,938. **Patented Sept. 7, 1920.**

Fig. 1

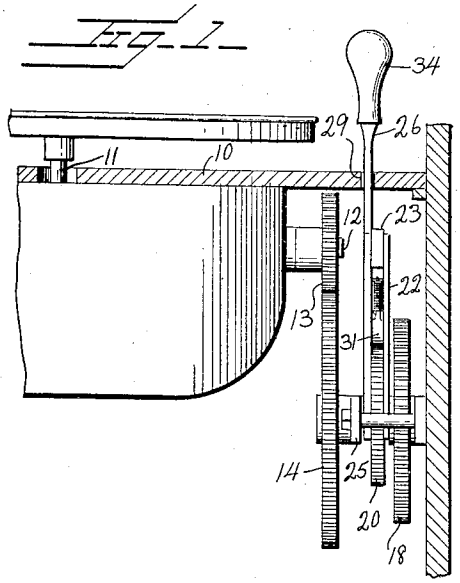


Fig. 2

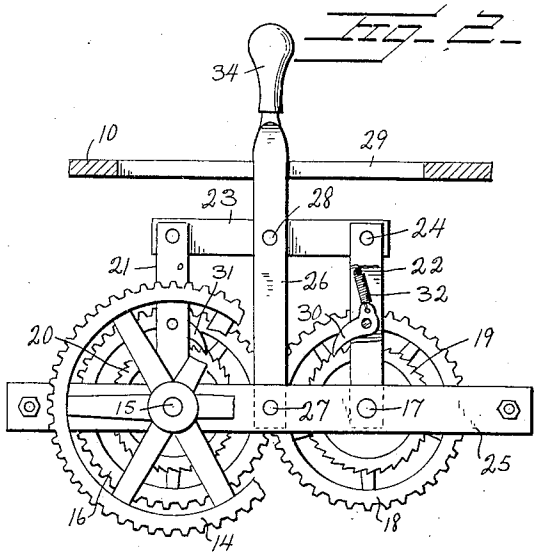
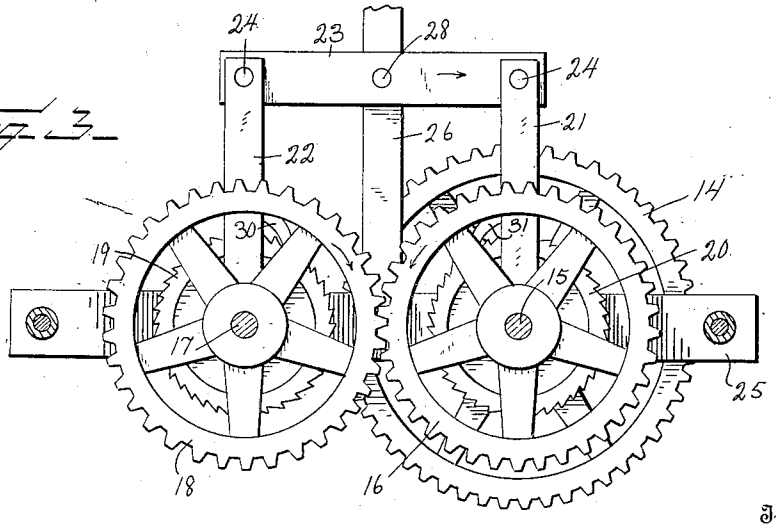


Fig. 3



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SPRING-WINDING MECHANISM FOR PHONOGRAPHS.

1,351,938. Specification of Letters Patent. Patented Sept. 7, 1920.

Application filed September 18, 1918. Serial No. 254,572.

To all whom it may concern:

Be it known that I, WILLIAM M. ALLEN, a citizen of the United States, residing at Merrill, in the county of Lincoln and State of Wisconsin, have invented certain new and useful Improvements in Spring-Winding Mechanism for Phonographs, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to spring motors for phonographs, and particularly to means for winding the springs of these motors. The spring of the usual motor for phonographs is wound by means of a crank.

The general object of this invention is to provide means whereby the spring may be wound by an oscillatable lever instead of the crank.

A further object is to provide a very compact mechanism for this purpose which may be placed inside of the machine entirely under cover, which may be actuated with very little difficulty, and which will cause a rotation of the spring arbor in one direction upon an oscillation of the actuating lever.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a vertical sectional view through a phonograph showing my improved winding mechanism therefor;

Fig. 2 is a side elevation of the winding mechanism partly broken away; the top plate 10 being in section; and

Fig. 3 is an enlarged side elevation looking in the opposite direction to that in Fig. 2.

In the drawings, 10 designates the top of the casing wherein the motor is disposed and through which the spindle 11 of the record table projects. The motor used is any suitable character of spring motor, and its details are not, therefore, illustrated. This motor is provided with the winding arbor 12 having thereon the pinion 13. This pinion is engaged by a gear wheel 14, mounted upon a shaft 15.

For the purpose of giving a continuous rotation of this shaft in the direction to wind up the spring, I mount upon this shaft 15 a gear wheel 16 and mount upon a parallel shaft 17 the gear wheel 18 which meshes with the gear wheel 16 and has, of course, the same diameter. It will be obvious that these gear wheels will, therefore, operate in opposite directions. Mounted upon the shafts 15 and 17, for rotation therewith, are the ratchet wheels extending in opposite directions. Assuming that the wheel 16 rotates in a counter-clockwise direction to wind up the spring of the motor and that the wheel 18 therefore rotates in a clockwise direction, it will be seen that the ratchet teeth on the ratchet wheels 19 and 20 extend in a direction opposite to the direction of rotation of the respective wheels.

Loosely mounted for oscillation on the shafts 15 and 17 are the arms 21 and 22, these arms being connected at their outer ends by means of a longitudinally extending rod 23 to which the arms are pivoted by means of screws or pins 24. The shafts 15 and 17 are mounted upon a supporting member 25 and pivotally connected to this supporting member 25 is a lever 26, whose pivotal point 27 is in line with the shafts 15 and 17, this lever being pivotally connected at 28 to the rod 23. This lever extends through a slot 29 formed in the top plate 10.

Pivotally mounted upon the arms 21 and 22 are the pawls 30 and 31 which extend toward each other and coact with the respective ratchet wheels 19 and 20. These pawls are preferably held in engagement with the ratchet wheels by means of springs 32. The lever is provided at its outer end with a handle 34 whereby the lever may be easily manipulated.

In the operation of this device when it is desired to wind up the spring of the motor, the lever 26 is operated. When it moves to the right in Fig. 3, the pawl 30 will engage the ratchet wheel 19 and thus cause a rotation of the shaft 17 in a clockwise direction and through the medium of the gear wheel 18 rotate the gear wheel 16 and shaft 15 in a counter-clockwise direction. Upon a movement of the lever toward the left in Fig. 3, the pawl 30 will ride over the ratchet teeth of the ratchet wheel 19 but the pawl 31 will become operative and rotate the ratchet wheel 20 in a counter-clockwise direction. It will thus be seen that by oscillating the lever 26, a continuous rotary motion in one direction will be communicated to the shaft 15 and to the arbor 12 to wind up the spring. Of course a reverse rotation of the shaft 12 and of the shaft 15 will be

prevented by the engagement of the pawls with the ratchet teeth.

This spring winding mechanism is very simple and very compact, may be easily applied to phonographs of any ordinary construction having spring motors and does away with the usual rather awkward crank which, in order to secure power, must be relatively long. All of the parts are entirely housed and the lever with its handle 34 is housed by the cover of the phonograph so that there is no place for the entrance of dust. The lever does not have to be detached as is the case with the crank.

Having described my invention, what I claim is:

1. In a mechanism of the character described, a driving shaft, a gear wheel mounted thereon, a second shaft extending parallel to the first named shaft, a gear wheel mounted thereon and meshing with the first named gear wheel, ratchet wheels mounted upon both of said shafts and having teeth extending in opposite directions, two pairs of arms disposed in parallel relation to each other, each pair being loosely mounted upon one of said shafts, and the arms of each pair being disposed on opposite sides of the corresponding ratchet wheel, oppositely directed pawls mounted upon each pair of arms, each pawl being mounted between a pair of arms and engaging their corresponding ratchet wheels, springs urging said pawls into engagement with the ratchet wheels, a link disposed between and connecting the outer ends of the pairs of arms and pivotally connected thereto, and an operating lever pivotally supported between said arms and extending parallel thereto, the pivot of said lever being in line with the shafts and the link being pivotally connected at its middle to said lever.

2. A spring winding unit for phonographs comprising a pair of spaced, longitudinally extending, parallel supporting bars operatively connected at their ends, a pair of parallel shafts supported in said bars, intermeshing gear wheels carried upon said shafts and disposed between said bars, ratchet wheels mounted upon said shafts and having oppositely directed teeth, arms loosely mounted upon the shafts and extending parallel to each other, the arms having oppositely directed, spring operated pawls engaging said ratchet wheels, each pair consisting of parallel members embracing the corresponding ratchet wheel and the pawls being disposed between said members, a link disposed between the pairs of members constituting the arms and pivoted thereto, an operating lever pivoted to said frame and extending parallel with the arms and pivoted to the middle of the link, and a motor winding gear wheel mounted upon one of said shafts.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM M. ALLEN.

Witnesses:

RODERICK J. WEBSTER,

F. C. ZEMLIKA.