

(No Model.)

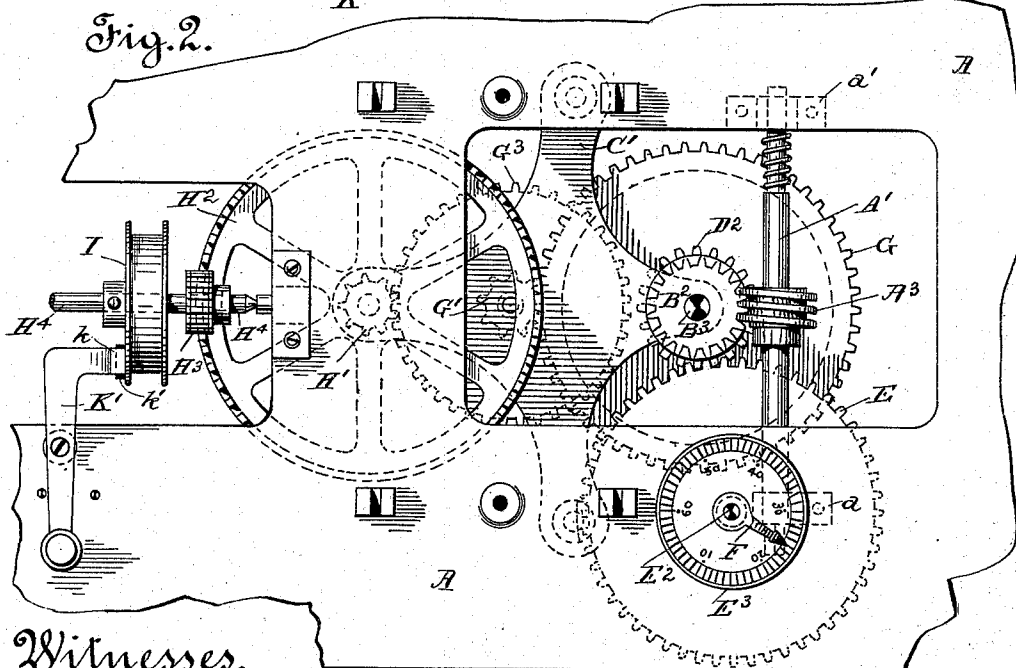
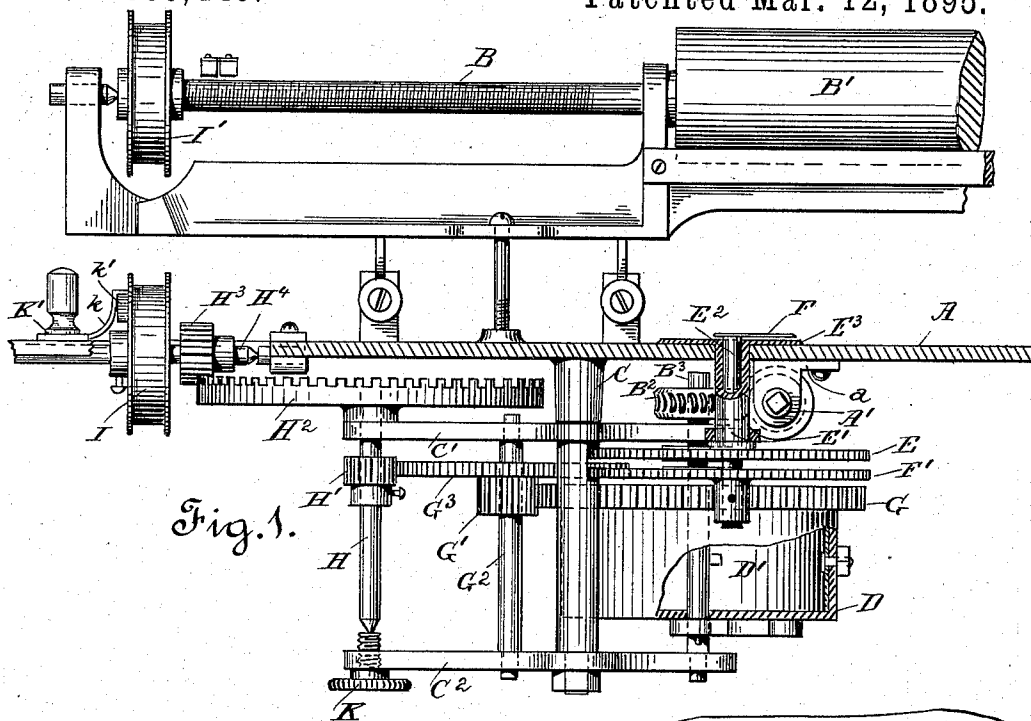
2 Sheets—Sheet 1.

L. GLASS.

OPERATING MECHANISM FOR PHONOGRAPHS.

No. 535,445.

Patented Mar. 12, 1895.



Witnesses.

F. Monteverde.

Edgar C. Humphrey.

Inventor
Louis Glass
by W. A. C. K. R. A. T. Y.

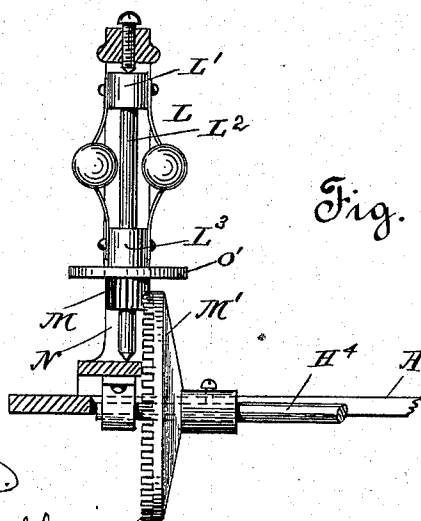
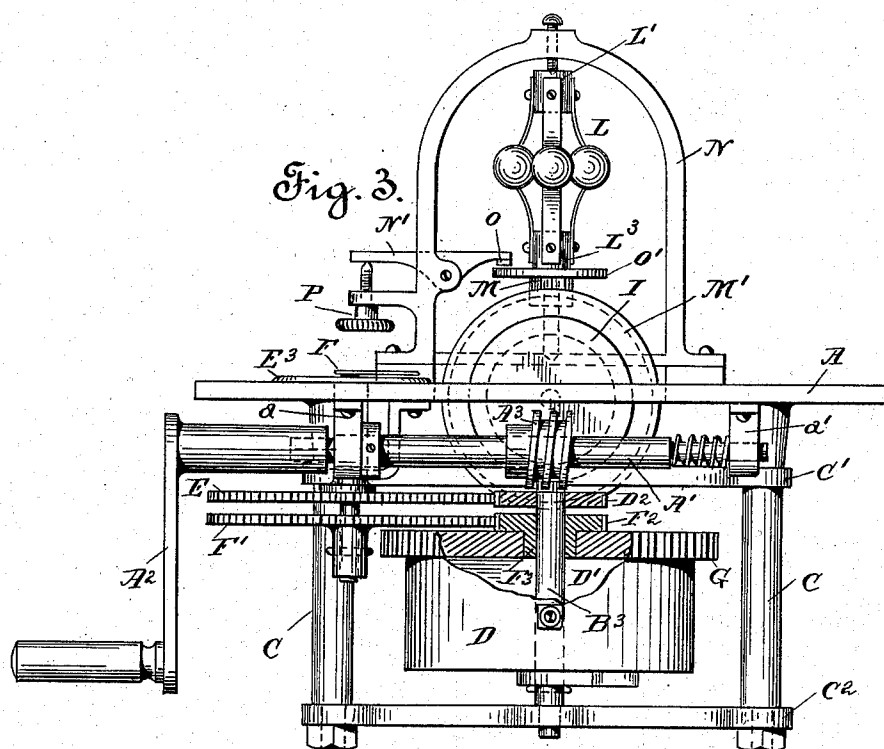
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Fig. 4.

Inventor.

Louis Glass

by N. Acker
Atty

UNITED STATES PATENT OFFICE.

LOUIS GLASS, OF SAN FRANCISCO, CALIFORNIA.

OPERATING MECHANISM FOR PHONOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 535,445, dated March 12, 1895.

Application filed February 16, 1894. Serial No. 500,412. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GLASS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Operating Mechanism for Phonographs; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

The present invention has relation to certain new and useful improvements in the operating mechanism of phonographs, which consists in the arrangement of parts and details of construction as will be hereinafter more fully set forth in the drawings, described and pointed out in the specification.

My invention comprises a phonogram cylinder adapted to receive rotation from a coiled spring, an indicator being provided which moves with the spring and indicates the reserve force of the same, governor balls being mounted upon a shaft connected with the phonogram cylinder and adapted to maintain the unwinding of the spring at a uniform speed. Upon the shaft which carries the governor balls I mount a disk with which a friction lever controlled by a thumb screw is adapted to be brought into engagement to adjust the speed of unwinding of the spring.

The object of my invention is to so construct the drive mechanism that the phonograph may be run for a length of time, say for an hour or more, with one winding of the spring mechanism, thus obviating the necessity of the operator rewinding the actuating mechanism each time the reproducer has traveled over the phonograph cylinder.

Referring to the drawings forming a part of this specification, wherein similar letters of reference denote corresponding parts throughout the entire specification and several views, Figure 1, is a front view in elevation with casing of the phonograph removed. Fig. 2, is a top plan of the same; Fig. 3, an end elevation thereof; and Fig. 4, a detail of the speed regulating governor.

The letter A is used to indicate the top of the frame, to which is hinged the ordinary casing of a phonograph, not shown, within which are contained and work the phonogram cylinder and reproducer, the reproducer traveling forward upon the screw-threaded shaft B, of the phonogram cylinder B'. The cylinder and reproducer are of the ordinary construction and work in the usual manner, and consequently need not be specifically described. From the under face of top A, downwardly extend the supports C, to which I secure the supporting plates C', C², between which plates I locate the driving mechanism hereinafter described.

Within the downwardly extending brackets, a, a', works the cross shaft A', one end of said shaft extending beyond the brackets a, and shaped to receive the crank A². By means of this crank said shaft is rotated and as rotated the worm collar A³, secured thereon, engages with the pinion B², and rotates the same in order to impart rotary motion to the vertical shaft B³. Upon this shaft is located the drum D, said shaft extending through the drum as shown. The drum and shaft I connect by means of the spring D', one end of which is fastened to the shaft and the other to the wall of the drum. Consequently as the shaft is rotated the spring is wound therearound. To this shaft, below the pinion B², is secured the pinion D², which pinion intermeshes with gear wheel E, fastened to the lower end of the sleeve E', which sleeve fits over the vertical shaft E². The upper end of the sleeve carries a dial or indicator plate E³.

Through the sleeve E', extends the vertical shaft E², to the upper end of which is fastened the indicating finger F, while upon the lower end is secured the gear wheel F', which gear intermeshes with the smaller gear or pinion F², which forms a part of the shell F³. This shell is rigidly secured to the drum D, and through the same extends the shaft B³.

The dial or indicator mechanism is used for the purpose of denoting whether the spring within the drum is wound or unwound and for this purpose the dial and finger have an independent movement. As the spring D', is

wound upon the vertical shaft B³, by the rotation thereof, the dial is revolved by the action of the pinion D², upon the gear E, the drum remaining stationary; while when the spring is unwound the drum D is revolved in the same direction as the shaft when winding the spring and the movement thereof is imparted to the shaft E² in order to revolve the indicator finger by the action of the pinion F², carried by the drum, upon the gear F', which is rigidly fastened to the shaft E².

It will be observed that the dial is provided with numerals around its outer face. Consequently by merely noting the position of the indicator finger on the dial face the operator is enabled to ascertain how near the spring is to being run down.

The upper plate of the drum is of greater diameter than the walls thereof and has teeth cut in the periphery, thus forming a large gear wheel G, the teeth of which intermesh with the pinion G', secured to the vertical shaft G². Consequently as the drum revolves the shaft is rotated through the medium of said pinion. Above this pinion there is secured the gear G³, which gear is rigid upon the shaft and rotates therewith. By means of this gear motion is imparted to the vertical shaft H, by reason of said gear intermeshing with pinion H', fixed thereon. Near the top of this shaft is secured the crown wheel H², which engages with gear wheel H³, secured to shaft H⁴, and transmits the motion of shaft G³ thereto in order to revolve the belt wheel I, fastened on shaft H⁴, which wheel is connected to belt wheel I', by means of a belt not shown. The belt wheel I', being secured to the shaft B, causes the revolution of the phonogram cylinder. By transmitting the rotary motion of the spring actuated drum to belt wheel I, through the medium of a series of pinions, an increased speed is imparted to the phonogram cylinder. The shaft H works upon an adjustable bearing K, as shown.

To one side of the belt wheel I, is located the fulcrumed lever K', the arm k of which carries a brake shoe k', which is adapted to engage with the wheel I, in order to stop the working of the machine by stopping the rotation of said belt wheel. The throwing on or off of this brake stops or starts the working of the machine.

Where the phonograph is used for home amusement or pleasure resorts my improved operating mechanism will be found of the utmost importance for the reason that after being once set in operation the machine may run for an hour, more or less, without requiring any attention on the part of the operator. By making the spring sufficiently strong and properly regulating the speed of the different gears and pinions, the phonograph may be made to run for days by one winding of the spring. Of course a weight may be made use

of in the place of a spring with equally good result, but in this case the winding shaft must act as the drum. The speed of the phonograph is regulated by the governor L, which is connected with the shaft H⁴. By means of this governor the speed of the phonograph may be increased or decreased as desired. This governor is secured to the collars L', L³, the upper one of which is movable upon the vertical shaft L², so as to slide up or down as the governor is thrown in or out by centrifugal force, while the lower one is rigidly fixed to the shaft. To the lower end of said shaft is secured the gear wheel M, with which the crown wheel M' meshes. This crown wheel is fixed to the shaft H⁴ and revolves therewith and imparts the motion thereof to shaft L², through the medium of gear M. In this manner the governor is connected to shaft H⁴.

To one side of the yoke N, which holds the vertical shaft L² in position, is fulcrumed the lever N', the inner end of which carries the brake shoe O, which shoe makes contact with disk O', as the outer end of lever N', is raised. The disk O', is rigidly fastened to shaft L², and the pressure of the brake shoe thereon regulates the speed of the governor, which controls the entire mechanism.

The lever N', is raised or lowered by means of the thumb screw P.

Having thus described my invention, what I claim as new, and desire to secure protection in by Letters Patent of the United States, is—

1. In a phonograph, the combination with the operating mechanism, of an indicator consisting of a dial and a finger or pointer above the dial independently connected with the operating mechanism whereby they will be non-simultaneously rotated in the same direction.

2. In a phonograph, the combination with the operating mechanism, of an indicating device for denoting the reserve power of the operating mechanism, said device consisting of a movable dial and a movable indicating finger, mechanism for rotating the dial with the setting of the operating mechanism, and devices for rotating the finger with the movement of the operating mechanism.

3. In a phonograph, the combination with a phonogram cylinder, of a coiled spring adapted in unwinding to impart rotation to said cylinder, an indicator moving with said spring and adapted to indicate the reserve force of the same, and governor balls mounted upon a shaft connected with said phonogram cylinder and adapted to maintain the unwinding of said spring at a uniform speed, substantially as described.

4. In a phonograph, the combination with a phonogram cylinder, of a coiled spring adapted in unwinding to rotate said cylinder, an indicator moving with said spring to in-

5 dicate the reserve force thereof, governor balls mounted upon a shaft connected with said phonogram cylinder and adapted to maintain the unwinding of said spring at a uniform speed, a friction disk mounted upon said shaft, and a friction lever controlled by a thumb screw adapted to be brought into engagement with said friction disk to adjust

the speed of unwinding of said spring, substantially as described. 10

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

LOUIS GLASS.

Witnesses:

N. A. ACKER,
LEE D. CRAIG.