No. 845,645. PATENTED FEB. 26, 1907.

L. D. KELLEY.

PHONOGRAPH REPEATING MECHANISM.

APPLICATION FILED SEPT. 24, 1906.

2 SHEETS—SHEET 1.

*Fig. 1.*

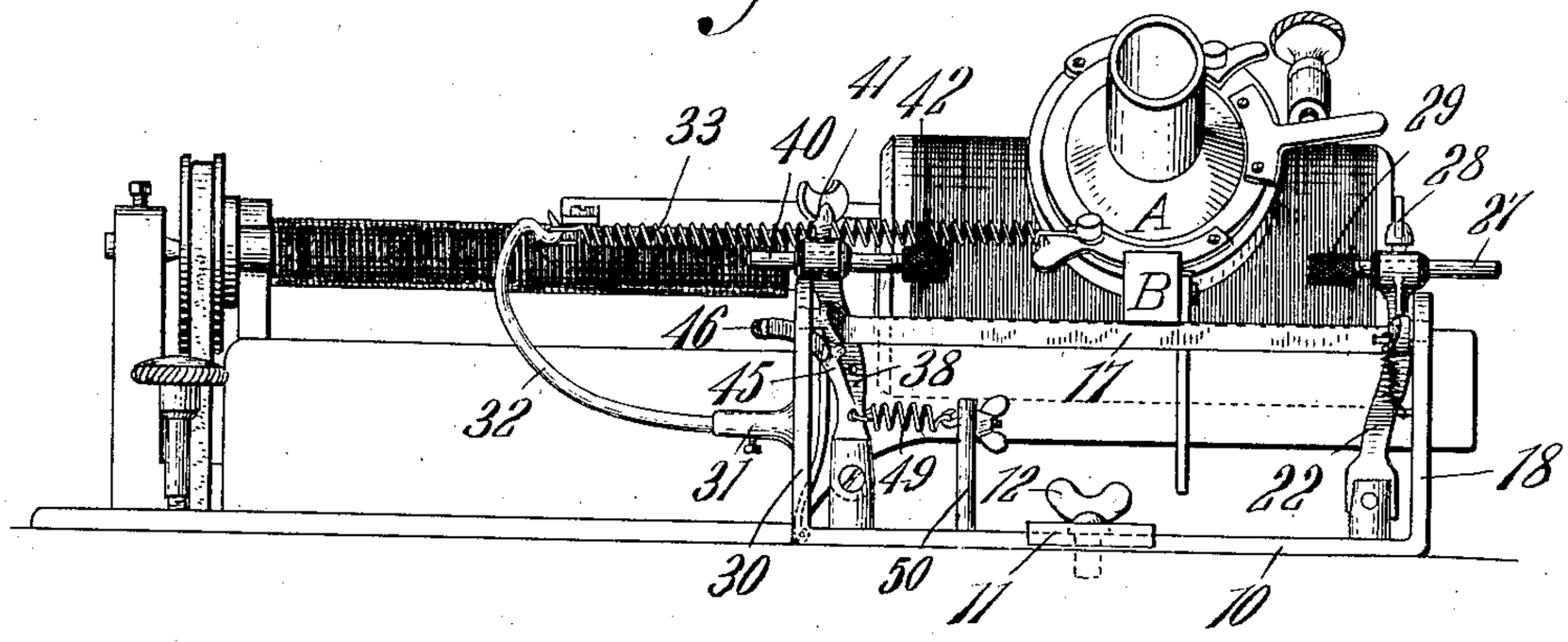
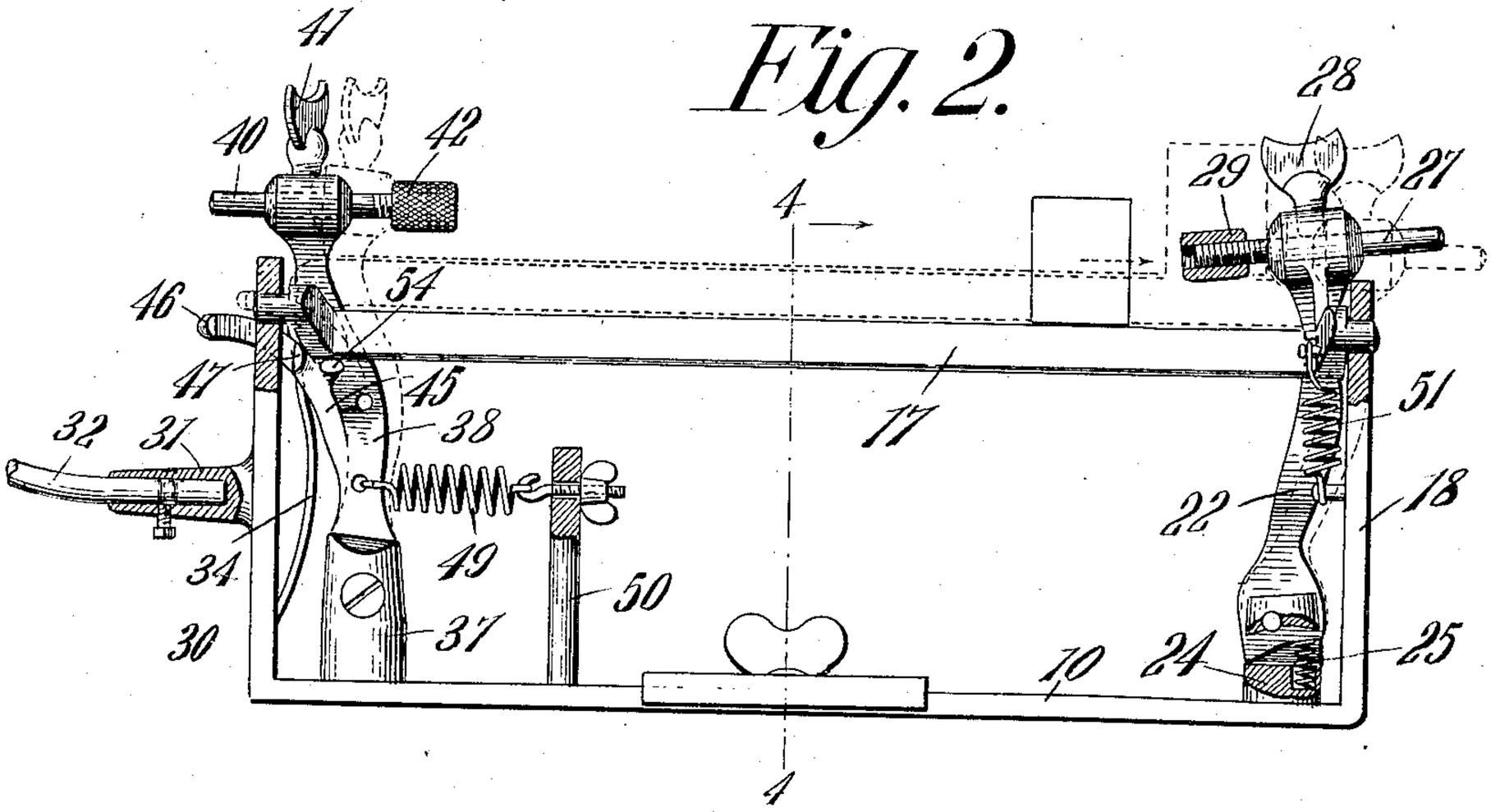



*Fig. 2.*

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2 SHEETS—SHEET 2.

*Fig. 3.*

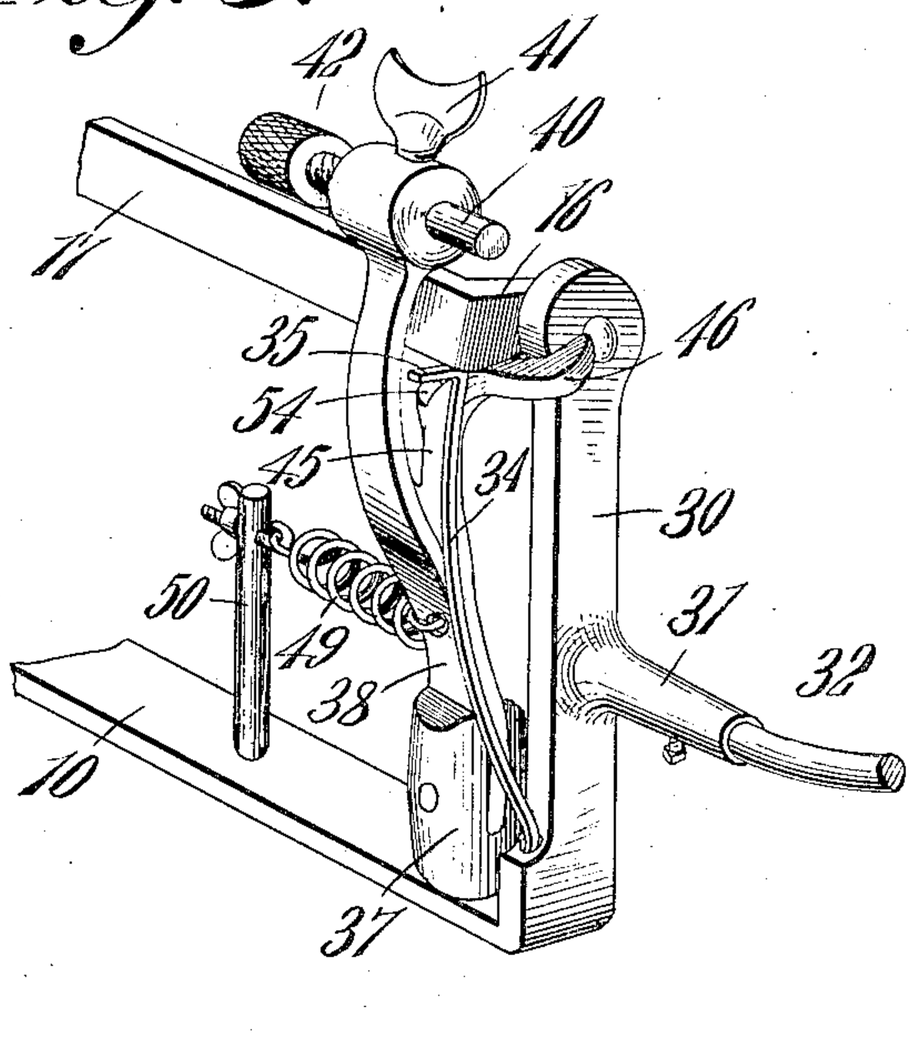
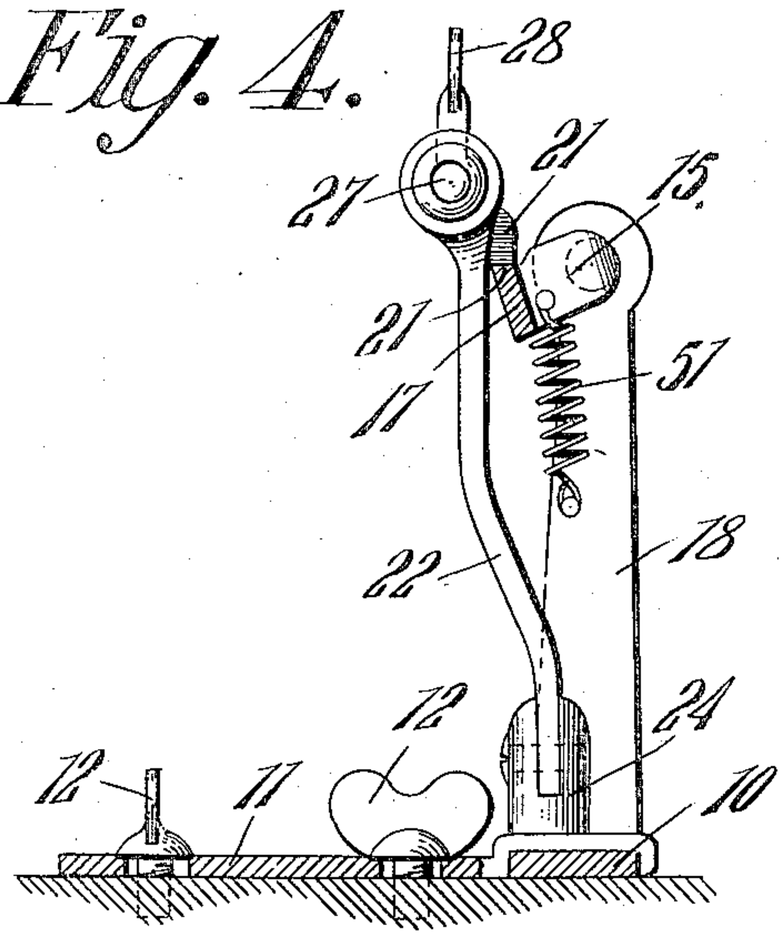



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

LYMAN D. KELLEY, OF MEMPHIS, TENNESSEE.

## PHONOGRAPH REPEATING MECHANISM.

No. 845,645. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed September 24, 1906. Serial No. 335,966.

*To all whom it may concern:*

Be it known that I, LYMAN D. KELLEY, a subject of the King of England, residing at Memphis, in the county of Shelby and State of Tennessee, have invented a new and useful Phonograph Repeating Attachment, of which the following is a specification.

The principal object of the present invention is to provide a device of simple construction for automatically effecting the repetition of reproductions of the records of phonographs and similar machines.

A further object of the invention is to provide a device of this class which may be attached to any ordinary phonograph and in which provision is made for effecting very accurate adjustment in accordance with the starting and stopping positions of the record.

A still further object of the invention is to provide a device of this type which will automatically operate to restore the sound-box carriage to initial position after the completion of each reproduction so long as there is sufficient motive power to run the machine.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a front elevation of a repeating device constructed in accordance with the invention, showing the same applied to a phonograph. Fig. 2 is a front elevation of the repeating device, parts being broken away to more clearly illustrate the construction. Fig. 3 is a detail perspective view of one end of the attachment looking from the rear. Fig. 4 is a transverse sectional view of the repeating attachment on the line 4 4 of Fig. 2.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The sound-reproducing machine shown in the drawing is of the Edison or other type and includes the usual sound-box A, and sound-box carriage, having a forwardly-extending arm B, which under normal conditions is supported on a stationary guide-rail at the front of the machine.

The attachment which forms the subject of the present invention includes in its construction a substantially U-shaped frame 10, the vertical arms of which are widely separated, and the base member of this frame is held in position by a suitable clip 11, confined by thumb-screws 12, that pass through slotted openings in the clip in order to permit ready readjustment of the frame both toward and from the phonograph and in the direction of its length.

At the upper ends of the vertical arms of the frame are openings for the reception of pivot-pins that project from arms 15 and 16, which latter are connected by an integral bar 17, that forms a rest or support for the forwardly-extending arm B of the sound-box carriage.

At the right-hand end of the frame—that is to say, adjacent to the vertical bar 18 thereof—the bar 17 is provided with a slightly-angular upper edge 20, as shown in Fig. 4, for engagement by a locking-lug 21, that projects from a pivotally-mounted arm 22, this arm 22 being pivoted between two ears of a stud or bracket 24, that is carried by the base, and being normally held to the left, or in the position shown in Fig. 2, by means of a small compression-spring 25. In this the lowermost position of the bar 20 the arm B of the sound-box carriage is allowed to travel in a horizontal plane, which permits the reproducing-stylus to engage with the record and effect reproduction of such record, the carriage being moved to the right, as usual, and on arriving at the end of the record the arm B will engage the arm 22 and move the lug 21 from bar 20, permitting the latter to rise in the manner hereinafter described and to elevate with it the arm B, moving the sound-box carriage up out of reproducing position.

In order to effect the necessary adjustment for records that terminate at different points in the length of the cylinder, the upper end of the arm 22 is provided with an opening for the passage of a pin 27, which is roughly adjusted and then locked in place by a set-screw 28. The inner end of this pin is threaded and carries a nut 29, which may be turned in order to effect the very

fine adjustment essential to stop the movement of the carriage at the end of the reproduction.

The left-hand arm 30 of the frame is provided with a lug 31, arranged for the reception of a curved arm 32, having at one end a hook for the reception of the end of a carriage-returning spring 33, which moves the carriage back to starting position after the bar 17 has been elevated, and in order to properly sustain the weight carried during this operation this arm 30 carries a small locking-spring 34, the upper end of which is bent rearward, forming an arm 35, that is adapted to extend under the bar 17 and lock the same in the elevated position.

At a point near the arm 30 is a stud or bracket 37, to which is pivoted an arm 38, that is bent upward to the rear of the bar 17 and is provided with an opening for the reception of a pin 40, which may be locked in place by a set-screw 41, and this pin has a threaded inner end on which is mounted a nut 42 to be engaged by the arm B when the carriage reaches the initial or starting position. The arm 38 is bifurcated, so as to form an auxiliary arm 45, that extends rearward of the arm 30 of the frame and is provided with two stops 46 and 47, arranged, respectively, to engage against the outer and the inner faces of the arm 30 and limit movement of the arm 38. This auxiliary arm 45 is rounded and forms a cam for engagement with the lower face of the arm 16 of the carriage-supporting bar 17, and when said arm 38 is pulled to the right by an adjustable spring 49, extending between the arm and the standard 50, the cam will elevate the arm 16 and the bar 17, this operation occurring immediately after the carriage-arm B moves the arm 22 to release position.

At the right-hand end of the frame is a spring 51, one end of which is connected to the arm 18 and the other end to the arm 15 of bar 20, this spring 51 being much weaker than the spring 49 and serving to draw the bar 20 down to the lowest position after the arm 38 has been moved outward by engagement of the sound-reproducing carriage therewith, and in this connection it is to be noted that the downward movement of the bar 17 under the influence of the spring 51 is limited by a stop 54, that projects from the auxiliary cam-arm 45.

In the operation of the device the bar 17 will be normally held in its lowest position by the engagement of the lug 21 with the inclined face 20 of the bar. As the sound-box carriage moves to the right during the reproducing operation the arm B of the carriage will finally engage with the nut 29 of pin 27, moving the arm 22 to the right and releasing the lug 21. As soon as this occurs the heavy spring 49, acting on the arm 38, causes the auxiliary cam-arm 45 to act on the arm 16 and elevate the bar 17 to such an extent as to raise the sound-box carriage to the inoperative position. As soon as this occurs the spring-lock 34 moves under the lower edge of the bar 17 and locks the latter in elevated position, so as to support the weight of the sound-box carriage during its return to initial position under the retractile force of the spring 33.

When the arm B of the sound-box carriage engages the nut 42 of pin 40, it will move the arm 38 to the left, and said arm will engage the arm 35 of spring 34, moving the latter to release position, and at the same time the cam-arm 45 will be carried to the left, moving gradually from under the arm 16 and permitting the spring 51 to draw the bar 17 down to the initial position. As soon as this is accomplished the stylus of the sound-box engages the record at the starting-point, and at the same time the arm 22 moves to the left and its lug 21 engages over the bar 17, holding the latter down until the completion of the reproducing operation, after which the same operation is repeated as many times as necessary or until the motive power is exhausted.

I claim—

1. In a reproducing apparatus for sound-reproducing machines, a rest or support for the sound-box, movable to disengage the latter from the prime mover, an elastically-mounted stop member at one end of the rest or support and in the path of the sound-box, said stop member being put under stress by the sound-box and normally locked by the rest or support, and another elastically-mounted stop member at the other end of the rest or support normally locking the latter in the depressed position and arranged in the path of the sound-box.

2. A repeating attachment for sound-reproducing machines comprising a rest or support for the sound-box, movable to disengage the same from the prime mover, a movable member in the path of the sound-box locking said rest or support in the depressed position, another movable member also in the path of the sound-box and impelled thereby to a position of stress, means carried by said last-named movable member for elevating the sound-box rest or support, and a lock for holding the rest or support in elevated position, said lock being under the control of said last-named movable member to operate said lock to release the rest or support.

3. In repeating apparatus for sound-reproducing machines, a pivotally-mounted bar adapted to support the sound-box carriage during its return to starting position, a locking-arm for holding said bar depressed, an adjustable member carried by the arm and disposed in the path of movement of the sound-box carriage, a spring-actuated cam for elevating said bar, means for locking said

bar in the elevated position, and means operable on the return of the carriage to starting position for releasing the bar and moving the cam to inoperative position.

4. In repeating apparatus for sound-reproducing machines, a pivotally-mounted bar arranged to form a support for the sound-box carriage during its return to starting position, a pair of pivotally-mounted arms, and springs controlling the elevation and depression of the bar, adjustable pins carried by the arms and each having a threaded end, and a nut screwed on each pin and disposed in the path of movement of the sound-box carriage.

5. In repeating apparatus for sound-reproducing machines, a frame, means for adjustably securing the same to the machine, a horizontally-arranged pivotally-mounted bar carried by said frame, a pivotally-mounted arm having a lug arranged to lock said bar in depressed position, said arm being disposed in the path of movement of the sound-box carriage, a spring tending to depress the bar, a second arm also disposed in the path of movement of the sound-box carriage, a locking-spring for holding the bar in elevated position, said spring being disposed in the path of movement of the second arm, a cam carried by said second arm and tending to elevate the bar, a spring for actuating the cam, a second arm, and means for returning the sound-box carriage to initial position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LYMAN D. KELLEY.

Witnesses:
RUDOLPH J. ABEL,
J. P. KEIRAN.