

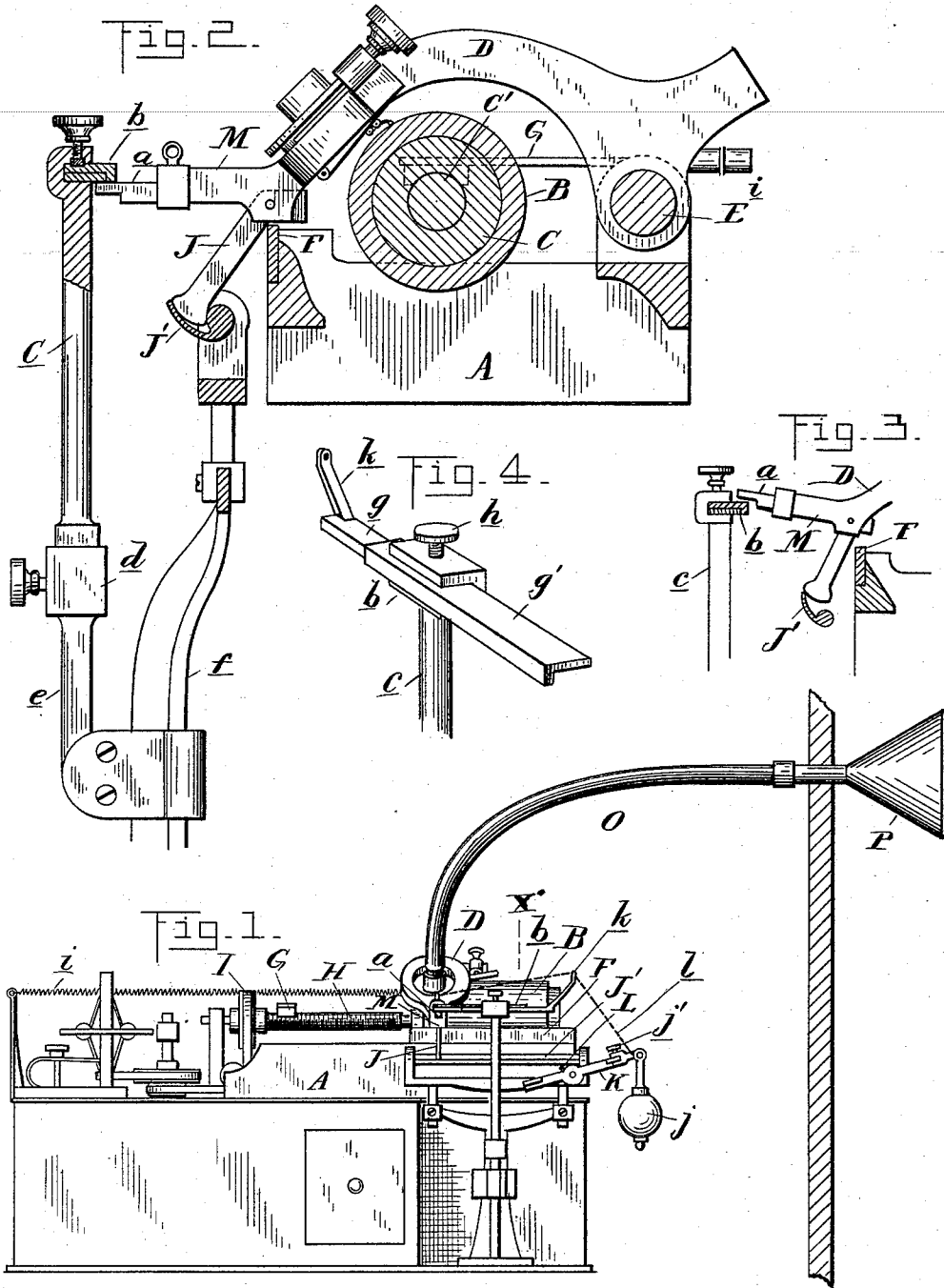
(No Model.)

J. H. LING.

AUTOMATIC REPEATING MECHANISM FOR PHONOGRAPHS.

No. 440,046.

Patented Nov. 4, 1890.



Witnesses

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AUTOMATIC REPEATING MECHANISM FOR PHONOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 440,046, dated November 4, 1890.

Application filed May 16, 1890. Serial No. 352,003. (No model.)

To all whom it may concern:

Be it known that I, JACOB H. LING, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Automatic Repeating Mechanism for Phonographs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in phonographs; and the invention consists in the peculiar construction, arrangement, and combination of automatically-repeating mechanism, whereby it is especially adapted to advertising purposes; and, further, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a front elevation of a phonograph embodying my invention. Fig. 2 is a vertical cross-section on line *xx*, showing the position of the carriage when in operation. Fig. 3 is a similar section of the guide-rail and carriage, showing the position of the parts when the carriage is being returned. Fig. 4 is an enlarged perspective view of the guide-rail detached.

A is the frame of the machine.

B is the phonogram-blank.

C is the phonogram-cylinder mounted on a shaft C'.

D is the carriage holding the reproducing and recording needles. This carriage is slidingly supported in the rear upon the shaft E and in front upon the rail F.

To a sleeve on the carriage D is secured the guide-arm G, which has a suitable screw-threaded guide-block engaging with the screw-threaded portion H of the shaft C.

I is the drive mechanism driven by any suitable motor. (Not shown.)

J is an arm resting upon the lifting-rail J', which latter is turned upon its axis to raise the outer edge of the rail J' to lift the carriage. This is accomplished by the lever K, having a pin L engaging the flange of the rail J', so arranged that when the lever is depressed the rail is lifted, and with it the carriage, the needle thereon being lifted off the phonogram-cylinder, and the carriage may be returned. These parts are all of known and usual construction in the manufacture of

phonographs, and it is to this machine that I attach my device for automatically retracting the carriage as often as it reaches the end of its work, thereby causing it to continuously reproduce the matter upon the cylinder as long as power is applied from the motor.

a is a guide-arm secured to the forwardly-extending arm M of the carriage, preferably adjustably secured. The adjustment may be accomplished in any suitable manner. This arm in the initial position of the carriage engages under the guide-rail *b*, which is adjustably secured to the top of the standard *c*, which at its lower end engages in a socket *d*, formed in the bracket *e*, clamped upon the upright *f* of the frame of the machine. The guide-rail *b* is formed of two bars *gg'*, clamped together and to the standard *c* by the set-screw *h*, whereby the rail *b* is adjustable in length as well as to its position with relation to the machine.

i is a counter-weight or counter-motor, such as the spring shown, connected at one end to the frame, and at the other end detachably connected to the carriage.

j is a counter-weight detachably secured to the end of the lever K by the set-screw *j'* and acting to normally turn the lever to lift the rail J'.

l is a cord connecting the carriage with the weight *j* and passing through an eye in the guide-arm *k* upon the rail *b*. The cord is preferably connected to the detachable arm *a*.

O is a flexible tube secured at one end to the reproducing mechanism upon the phonograph and at the other end to the funnel P.

The parts being thus constructed and arranged, they are intended to operate as follows: The phonogram, being charged with suitable matter, is placed upon the cylinder of the machine in the well-known manner, and power is applied to the motor to rotate the cylinder and to move the carriage over the same. In starting the device before the arm *a* is engaged under the end of the guide-rail *b*, the cord *l* will be taut, and will lift the weight *j*, and with it the lever K, so that the pin L will not bear against the rail J', and the carriage will rest upon the guide-rail F. As the carriage moves along, the arm *a* will be held against the under side of the rail *b* by the weight *j*, which is allowed to act by the

slackening of the cord *l*, so as to cause pressure of the pin *L* upon the under side of the flange of the rail. During the further travel of the carriage the rail *J'* will bear against the arm *J*, which will hold the arm *a* against the rail *b*. As the carriage travels forward, it is evident that the motor will be acting against the counter motor or spring *i*. As soon as the carriage has reached the end of the guide-rail *b*, the weight *j* will lower the lever *K*, and, through the medium of the pin *L*, will raise the flange of the rail *J'*, and through the arm *J* the carriage will be lifted to the position shown in Fig. 3, wherein the arm *a* is above the guide-rail *b*. The lifting of the carriage lifts also the screw-threaded guide-block on the arm *G* from the screw-threaded portion *H* of the shaft *C'*, and the carriage is free to slide back upon the upturned edge of the rail *J'*, and is returned to its initial position by the tension of the spring *i*. Just before the carriage reaches the end of its return movement the cord *l* is made taut again and the weight *j* is lifted, allowing the rail *J'* to be depressed. The arm *a* will now rest upon the rail *b*, sustaining the weight of the carriage thereon, so that when the latter reaches the end of the rail it will suddenly drop upon the guide-rail *F*, and the guide-block will be thrown into engagement with the screw-threaded shaft. In this way it will be seen that the carriage is automatically returned to its initial position at the end of each movement, and the length of this movement may be adjusted in accordance with the amount of matter upon the cylinder by adjusting the length of the guide-rail *b* in the manner before described and correspondingly adjusting the length of the cord *l*. The engagement and release of the block on the arm *G* from the lead screw *H* are effected instantly, so that there is no liability of dragging or marring of the screw-threads.

My device is especially designed to be used in connection with a phonograph having a cylinder charged with advertising-matter and designed to be placed within a store-window and having the funnel *P* placed outside, so as to reproduce the matter upon the cylinder in such a manner that parties passing the store will hear it. I have found it especially efficient as an advertising medium to charge the cylinder to be used with music and with advertising-matter. Parties passing the store will be attracted by the music, which apparently comes from an unknown source, and in stopping to listen will also hear the remarks regarding the goods desired to be advertised.

What I claim as my invention is—

1. In a phonograph, the combination, with the phonogram, motor, carriage, and reciprocating mechanism, of a lifting-rail, a weighted lever for moving the rail, and a spring for

drawing the carriage back, substantially as described.

2. In a phonograph, the combination, with the motor, phonogram, and reciprocating carriage, of a movable rail, a lever for moving the rail, a spring for returning the carriage, and a guide-rail for retaining the carriage in an operative position, substantially as described.

3. In a phonograph, the combination, with the phonogram, the reproducing mechanism, and the motor, of a counter-weight and motor for automatically lifting and returning the reproducing mechanism to its initial position, and a guide-rail for retaining the reciprocating mechanism in operative contact with the phonogram, substantially as described.

4. In a phonograph, the combination, with the phonogram, the reproducing mechanism, and the motor, of a weighted lever for automatically disconnecting the motor from the cylinder at the end of the desired movement, substantially as described.

5. In a phonograph, the combination, with the phonogram, the reproducing mechanism, and the motor, of a weighted lever for automatically disconnecting the motor, and a counter-motor for automatically lifting and returning the reproducing mechanism to its initial position, substantially as described.

6. In a phonograph, the combination, with the phonogram, the reproducing mechanism, and the motor, of means for automatically disconnecting the motor, mechanism for lifting and returning the reproducing mechanism to its initial position and connecting the motor when so returned, and an adjustable rail for retaining the carriage in its operative position, substantially as described.

7. In a phonograph, automatic returning mechanism for the reproducing mechanism, consisting of the spring *i*, guide-rail *b*, and counter-weight *j*, acting to disconnect the motor and hold it in its disconnected position during the return of the carriage, and the cord *l*, substantially as described.

8. In an automatic repeating mechanism for phonographs, the combination, with a reciprocating carriage, of the guide-rail *b*, consisting of the two parts *g g'*, adjustably secured together, and an arm on the carriage engaging the under side of the rail, substantially as described.

9. In an automatic repeating mechanism for phonographs, the combination, with a reciprocating carriage, of the guide-rail *b* for holding the carriage down adjustably laterally and vertically, substantially as described.

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

JACOB H. LING.

Witnesses:

GEO. O. GREGG,
JAMES WHITEMORE.