



# UNITED STATES PATENT OFFICE.

WALTER C. RUNGE, OF LONDON, ENGLAND.

## SPEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 738,125, dated September 1, 1903.

Original application filed December 13, 1901, Serial No. 85,824. Divided and this application filed August 5, 1902. Serial No. 118,428. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER C. RUNGE, a citizen of the United States of America, residing at London, England, have invented certain new and useful Improvements in Speed-Regulators, of which the following is a specification.

The present application is a division of my earlier application, Serial No. 85,824, filed December 13, 1901.

The present invention relates to starting, stopping, and speed-regulating mechanism for graphophones, phonographs, and the like, its object being the construction of a simple and convenient mechanism by means of which the driving-motor may be started or stopped or its speed regulated through the operation of one handle or lever only.

In the accompanying drawings, Figure 1 illustrates in perspective one construction of starting, stopping, and speed-regulating mechanism according to this invention; and Fig. 2 is a similar view showing a modified construction.

With reference first to Fig. 1, A is a brake-disk mounted free to slide upon a spindle B and joined through flexible springs A' to a collar A<sup>2</sup>, fixed onto the spindle. The spindle B is driven from a motor which is not shown, but may be of any convenient type—say, for example, a clockwork-train. Weights in the form of balls A<sup>3</sup> are attached to the springs A', and the disk A, with the springs and balls, forms a governor of the type usually found in graphophones and phonographs. It will be understood that when the spindle B is driven from the motor the balls A<sup>3</sup> fly out under the action of centrifugal force and alter the position of the brake-disk A upon the spindle. C is a portion of the base-plate of the instrument and carries pivoted beneath it a bent lever D, one end of which supports a brake-block D', which can be brought by the movement of the lever into contact with the brake-disk A. The end of the lever D, carrying the brake-block, is acted upon by a spring E, which tends to press the block against the disk A. Pivoted, as at F', to the base-plate C is a spring-arm F, carrying at its free end a block F<sup>2</sup>, having an inclined face F<sup>3</sup>. Through this block a screw G passes,

which is furnished with a milled head G' and projects through a slot C' in the base-plate C. When the instrument is at rest, the screw G occupies such a position in the slot C' that the block F<sup>2</sup> is clear of the end of the lever D. Hence the other end of this lever is moved through the action of the spring E, so as to press the block D' into contact with the brake-disk A. To start the motor, the screw G is moved along the slot C' and the inclined face F<sup>3</sup> of the block F<sup>2</sup> moves the adjacent end of the lever D into the position shown in Fig. 1, thus carrying the brake-block D' away from the disk A and allowing the motor to start. The speed attained will be limited by the position of the brake-block D', for the governor-balls A<sup>3</sup> will fly out until the disk A is brought up against that block. This position can be altered by rotating the milled head G', thus causing the block F<sup>2</sup> to travel up or down the screw G and correspondingly altering the position of the end of the lever D. It will be seen that the same arm F and screw G are used both for starting and stopping and for regulating the speed of the motor. It is further to be noted that after the speed has been regulated to the desired extent by turning the screw G the motor can be started and stopped without altering the position of the block F<sup>2</sup> relatively to the screw G, so that whenever the motor is started it will run at the desired rate.

In Fig. 2 a modification of the speed-controlling mechanism is shown adapted for motors in which the governors are placed in a vertical position. In this construction the brake-disk A<sup>4</sup> is moved up and down its spindle B' through the action of pivoted arms A<sup>5</sup>, supporting weights A<sup>6</sup>, which fly out under centrifugal force against springs A<sup>7</sup>. A spring-arm F<sup>4</sup>, pivoted, as at F<sup>5</sup>, to the under side of the base-plate C<sup>2</sup>, is provided with a nut F<sup>6</sup>, through which a screw G<sup>2</sup>, having a milled head G<sup>3</sup>, passes. This arm is furnished with a curved lateral extension F<sup>7</sup>, carrying a brake-block D<sup>2</sup>. If, as shown in Fig. 2, the arm F<sup>4</sup> be turned about its pivot by moving the screw G<sup>2</sup> in its slot C<sup>3</sup>, the downwardly-curved portion of the brake-block D<sup>2</sup> is brought into contact with the brake-disk A<sup>4</sup> and stops the motor. When the screw G<sup>2</sup> is



moved to the other end of the slot, the curved portion of the brake-block is removed from the periphery of the brake-disk and the motor can run at a speed determined by the relative positions of the arm  $F^4$  and the brake-disk  $A^4$ . In this construction, as in that illustrated in Fig. 1, the arm or lever carrying the brake-block can be moved in two planes, one motion being to start and stop the mechanism and the other to regulate its speed. Both these movements, however, are brought about through the action of the milled-headed screw, which can be either moved in its slot or rotated.

While, as hereinbefore stated, the present invention is particularly adapted for "speed-regulating mechanism for graphophones, phonographs, and the like," it will be obvious that it is equally applicable to any other form of motor-driven instrument—for instance, music-boxes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a speed-regulating device for a graphophone or other motor-driven instrument, the combination with a driven brake-disk, of a brake, a lever for moving said brake toward and from the brake-disk, and means for adjusting said lever, movable in one way to start or stop the mechanism controlled by the brake and brake-disk and movable in another way to regulate or change the speed of such mechanism.

2. In a speed-regulating device for a graphophone or other motor-driven instrument, the combination with a driven brake-disk, of a

brake-block, a spring-controlled pivoted lever supporting said brake-block, a pivoted arm carrying a block at its free end, and a screw passing through a tapped hole in said block and arranged so that it can be moved either to turn the arm about its pivot to start and stop the machine or rotated to alter the position of the brake-block relatively to the disk to regulate the speed substantially as set forth.

3. In a speed-regulating device for a graphophone or other motor-driven instrument, the combination with a brake-disk, a brake, and a lever connected with said brake, of a hand-piece movable laterally to adjust said lever to start or stop the mechanism controlled by the brake-disk and brake and movable longitudinally to regulate or change the speed of said mechanism.

4. In a speed-regulating device for a graphophone or other motor-driven instrument, the combination with a brake-disk, a brake, and a lever for moving said brake to and from the brake-disk, of a block having an inclined face or surface at one end, and means for moving said block to and from a position where said inclined surface thereof will act on the lever to cause the latter to move the brake relative to the brake-disk.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER C. RUNGE.

Witnesses:

HARRY ALDRIDGE,  
ARCHD. J. FRENCH.