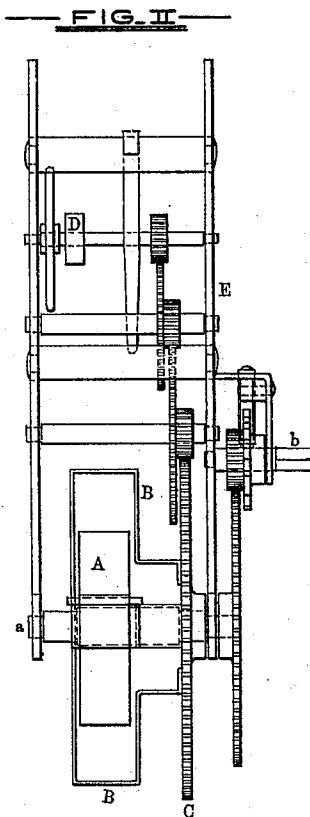
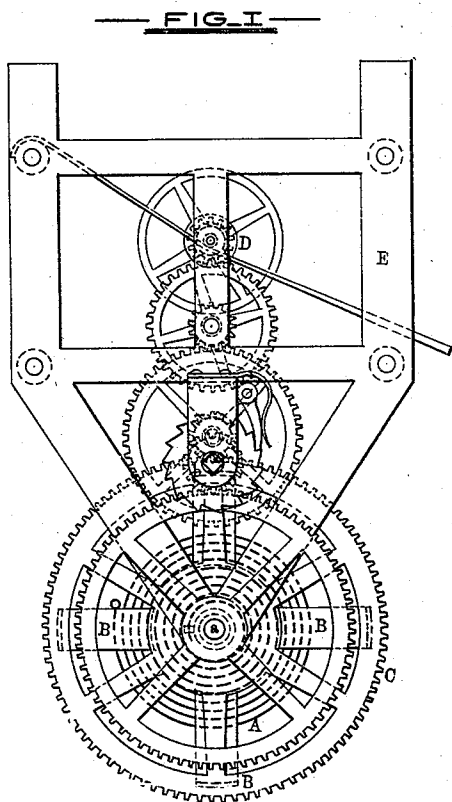


R. RHETT.
SPRING-MOTOR.

No. 175,501.

Patented March 28, 1876.



— WITNESSES —

John S. Long
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— INVENTOR —

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UNITED STATES PATENT OFFICE.

ROLAND RHETT, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN SPRING-MOTORS.

Specification forming part of Letters Patent No. 175,501, dated March 28, 1876; application filed January 3, 1876.

To all whom it may concern:

Be it known that I, ROLAND RHETT, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Volute-Spring Motors, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to a volute-spring motor, the distinguishing features of which consist in that the outer end of the spring exerts a variable tension or strain upon the part of the moving mechanism to which it is directly attached, and in which the winding-stem is arranged in such manner with reference to the spring and contrivances connecting it therewith as to admit of its being revolved by a key or equivalent device to coil or compress the spring while the same is uncoiling and performing useful work.

In the further description of my invention which follows due reference must be had to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a side view of a volute-spring motor embodying my improvements, and Fig. 2 an edge view of the same.

Similar letters of reference indicate corresponding parts in both figures.

A is an ordinary volute spring, the inner end of which is attached to a shaft, *a*. The shaft *a* is stationary except in the operation of winding or compressing the spring through the medium of a counter-shaft or winding-stem, *b*, and a series of gear-wheels connecting the winding-stem with the shaft *a*. The outer end of the spring A is attached loosely to a cage, B, within which the spring is confined, the attachment being such as to admit of a radial movement of the outer end of the spring in the coiling and uncoiling of the same, for purposes hereinafter described. The cage B is rigidly connected to the main spur-wheel C, which revolves upon and independently of the shaft *a*, and from which movement is transmitted by means of gearing or

belts, &c., to the driving-pulley D. A suitable frame, E, is provided as support for the above-described mechanism, and shown in the drawing as adapting the motor specially for attachment to sewing-machines. The motor is, however, applicable to all purposes for which spring-motors are usually employed by merely modifying the character of the frame and other minor parts. The spring A is coiled or compressed by revolving the shaft *a* through the medium of the winding-stem *b* and gearing before alluded to, the outer end of the spring moving toward the center of the shaft *a*. By this arrangement the spring, when wound or compressed, and in a condition to revolve the pulley D at its maximum velocity, operates to move the cage B from a point near to the shaft *a*, upon which it is wound. As the spring unwinds the radial distance of the outer end thereof from the shaft *a* is gradually increased, and the effective leverage of the spring augmented, thus compensating for its reduced elastic force.

It will be understood that the relative proportion of the various parts of the invention are designed to be such as to cause a nearly-uniform movement of the pulley D. An ordinary brake is used to govern the speed of the pulley D.

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

1. The shaft *a*, spring A, cage B, and winding-wheel, combined with the winding-shaft *b*, winding-pinion, and ratchet mechanism, substantially as specified.

2. The spring A, the outer end of which has a free radial movement, as described, its inner end being secured to the coiling-shaft *a*, combined in a suitable frame with said shaft *a*, cage B, and power-transmitting wheel C, substantially as herein specified.

In testimony whereof I have hereunto subscribed my name this 24th day of December, in the year of our Lord 1875.

ROLAND RHETT.

Witnesses:

BENJAMIN WALLIS,
JNO. T. MADDOX.