(No Model.)

M. H. HOWELL.

SPRING MOTOR.

No. 313,334. Patented Mar. 3, 1885.

Fig. 1.

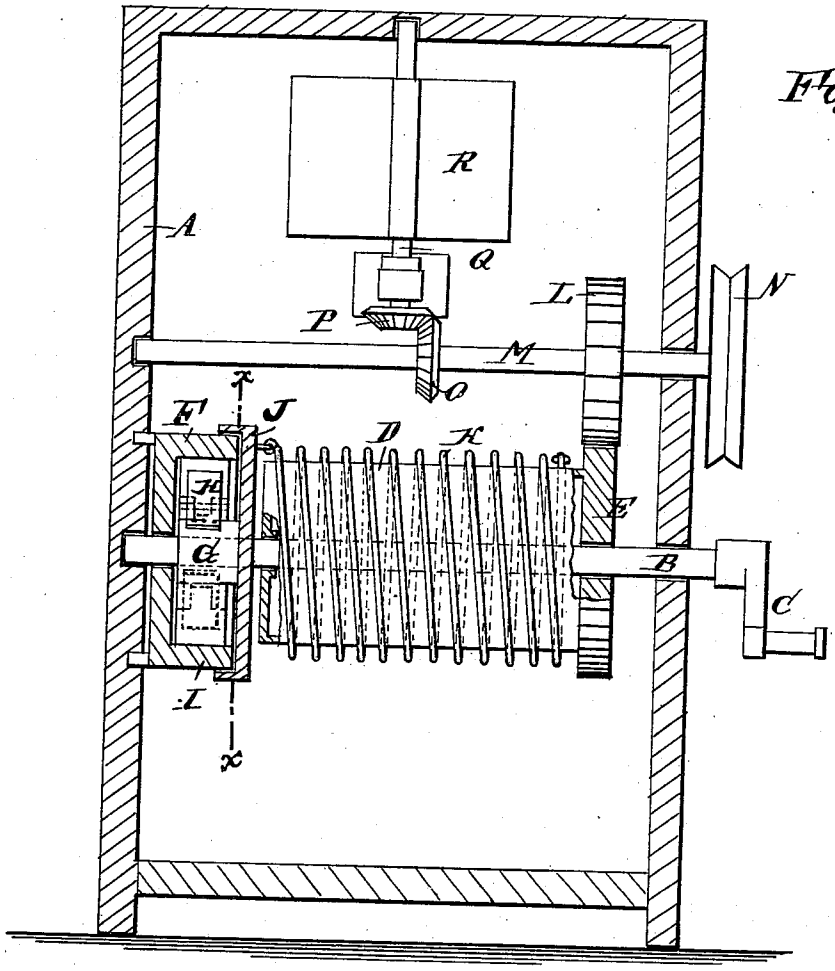
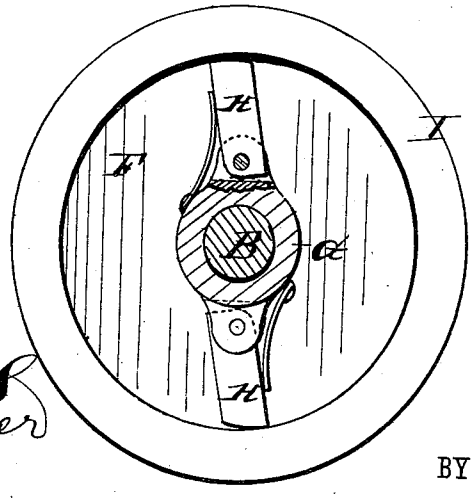


Fig. 2.



WITNESSES:

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MATTHIAS H. HOWELL, OF JERSEY CITY, NEW JERSEY.

SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 313,334, dated March 3, 1885.

Application filed August 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS H. HOWELL, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Spring-Motors, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved spring-motor adapted for driving sewing-machines, gig-saws, fans, &c.

The invention consists in a spring-motor constructed with a tubular spring wound on a drum, and having one end secured to the drum, and the other end secured to a disk or wheel for winding it, the said disk being rigidly mounted on the shaft, and having clutch dogs or pawls for locking it in place.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal elevation of my improved spring-motor, parts being broken out and others shown in section; Fig. 2, a cross-sectional view on the line *x x*, Fig. 1.

In the supporting-frame A of the sewing or other machine a horizontal shaft, B, is journaled, and is provided on one end with a crank-handle, C, for turning it.

On the shaft B is loosely mounted a drum or sleeve, D, on one end of which a cog-wheel, E, is formed; and at the other end a recessed disk or wheel, F, is also held loosely on the shaft B and fixed to the frame. In the recessed wheel F a collar, G, is rigidly mounted on the shaft B, and on it are pivoted two clutch dogs or pawls, H, adapted to catch on the inner surface of the annular flange I of the recessed disk F. The dogs slide on the flange I when turning in one direction and grip when turning in the other direction. A disk, J, is formed on the collar G at the end of the drum. A powerful spiral spring, K, coiled around the drum D and forming a tubular spiral spring, has one end secured to the disk J, and the other end is secured to the drum at the cog-wheel E. The cog-wheel E engages with a pinion, L, on a shaft, M, provided at one end with a belt-pulley, N. A bevel cog-wheel, O, on the shaft M engages with a bevel cog-wheel, P, on a vertical shaft, Q, carrying a regulating-fan, R. By turning the shaft B from left to right the spring K is coiled on the drum D and wound tightly, as it is connected with the disk J on the rigidly-mounted collar G on the shaft. The clutch-dogs H slide loosely on the inner surface of the flange I and do not bite or engage. When the shaft B is released after the spring has been wound, the spring, having the tendency to unwind, turns the disk J, the collar G, and the pawls H on the same in the inverse direction—that is, from right to left. The clutch-pawls catch on the flange of the rigidly-mounted wheel F, and thus prevent the uncoiling of the spring. The other end of the spring can uncoil by revolving the drum, thus revolving the cog-wheel E and operating the machine.

In place of the friction-clutch a ratchet and pawl may be used.

If desired, gearing may be provided for turning the shaft B from a crank in the front part of the frame A.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a spring-motor, the combination, with a shaft, of a drum loosely mounted on said shaft, a spiral spring wound on the drum and having its ends connected to said drum and shaft, and means for preventing the uncoiling of the spring, substantially as herein shown and described.

2. In a spring-motor, the combination, with a shaft and a disk rigidly mounted thereon, of a drum loosely mounted on the shaft and provided with a cog-wheel at one end, a spiral spring wound on the drum and having its ends connected to the disk and drum, and a clutch for preventing the uncoiling of the spring, substantially as herein shown and described.

3. In a spring-motor, the combination, with a drum, of a spiral spring wound on the same, and having one end connected with the said drum, and the other end connected with a disk mounted on a shaft for turning it, and provided with clutch dogs or pawls for locking it in place, substantially as herein shown and described.

4. In a spring-motor, the combination, with the drum D, of the spiral spring K, secured to one end of the drum, the shaft B, passing loosely through the drum, the disk J on the shaft, with which disk the spring is connected, and the clutch dogs or pawls H on the collar G on the shaft end of the fixed recessed disk or wheel F, substantially as herein shown and described.

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