(No Model.) 2 Sheets—Sheet 1.

S. BAKER.

DEVICE FOR WINDING SPRING MOTORS.

No. 498,836. Patented June 6, 1893.

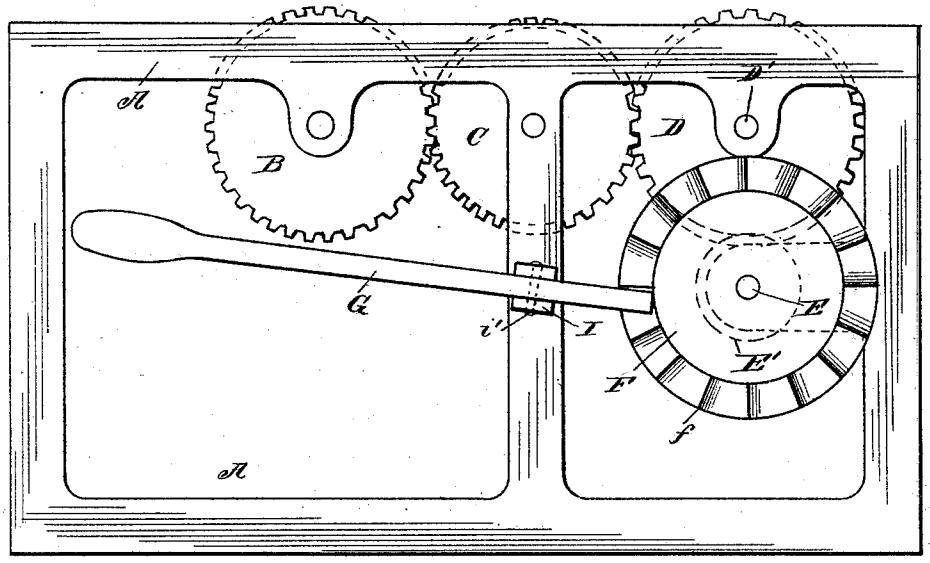

Fig. 1

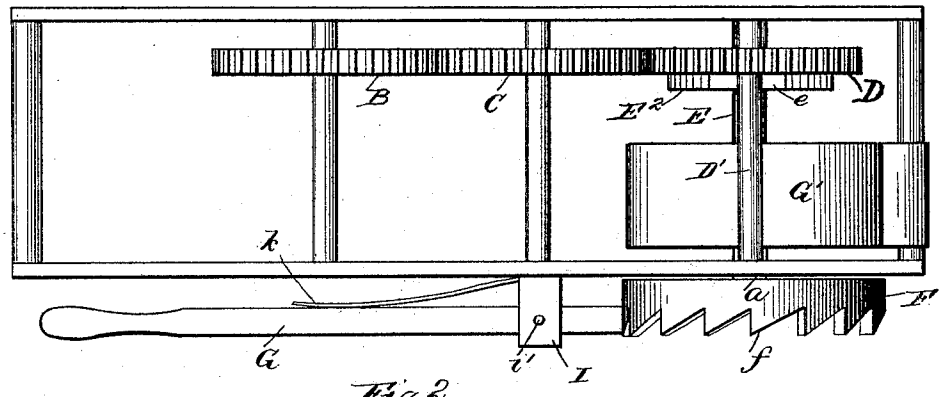

Fig 2

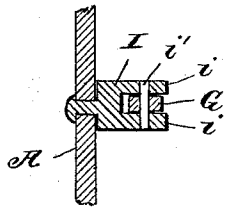

Fig. 3.

Witnesses.
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E. A. Duggan.

Inventor
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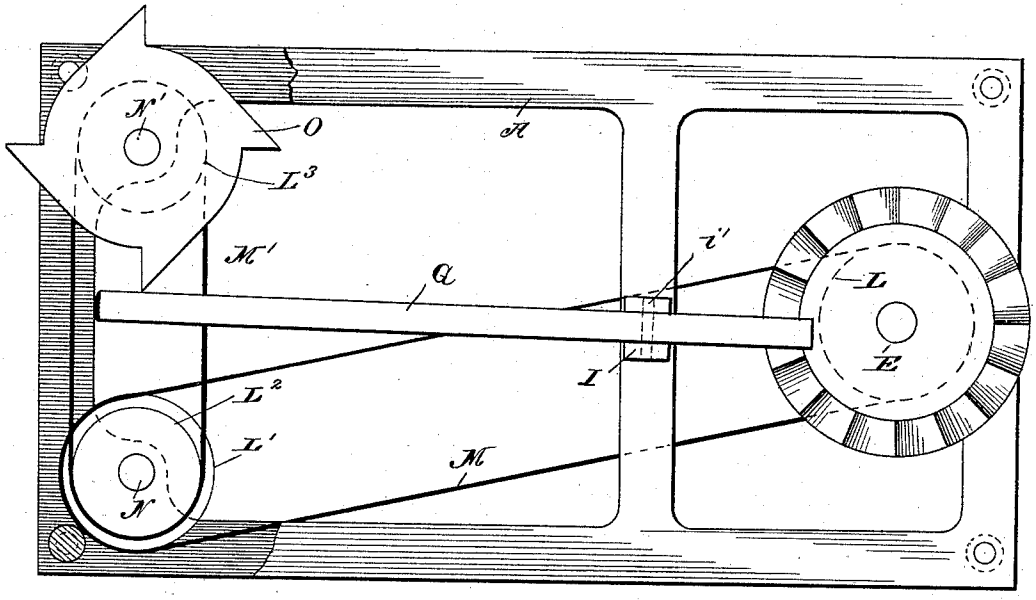

Fig. 4

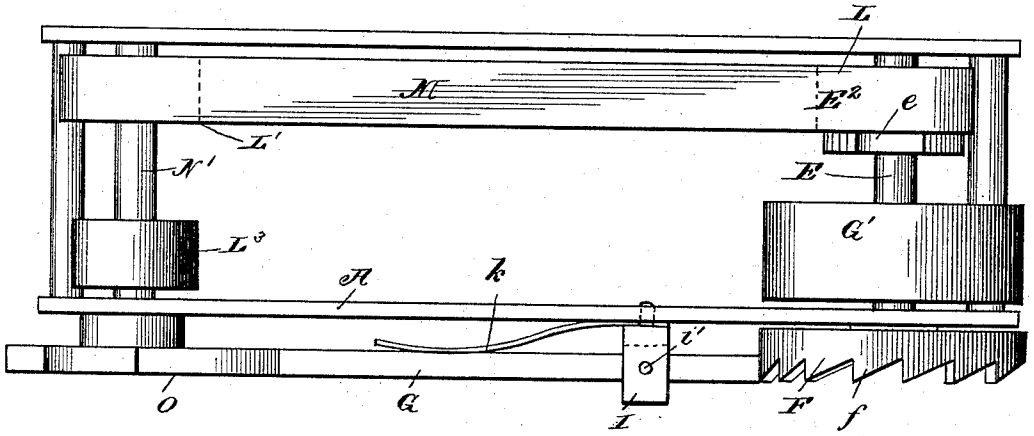

Fig. 5

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UNITED STATES PATENT OFFICE.

SILAS BAKER, OF PAW PAW, ILLINOIS.

DEVICE FOR WINDING SPRING-MOTORS.

SPECIFICATION forming part of Letters Patent No. 498,836, dated June 6, 1893.

Application filed July 18, 1892. Serial No. 440,370. (No model.)

To all whom it may concern:

Be it known that I, SILAS BAKER, a citizen of the United States, residing at Paw Paw, in the county of Lee and State of Illinois, have invented certain new and useful Improvements in Devices for Winding Springs for Motors, of which the following is a specification.

This invention relates to improvements in the method of winding or tightening the springs used in ordinary clock mechanisms or spring motors of various kinds, and it consists in certain peculiarities of the construction, novel arrangement and operation of the same, as will be hereinafter more fully set forth and specifically claimed.

The objects of my invention are first, to provide a simple and inexpensive means for winding up the springs of spring-motors and clock mechanisms, in which the operation of winding springs of great strength and power can be readily accomplished by hand, that is, without the use of additional machinery; and second, a device for such a purpose, which in the operation of mechanism or motor will be acted upon in such a manner as to cause it to automatically wind the spring or springs.

In order to enable others skilled in the art, to which my invention pertains to make and use the same, I will now proceed to describe it referring to the accompanying drawings, in which—

Figure 1, is a view in side elevation of the main frame of a clock mechanism, showing its gears, and my winding lever secured thereto. Fig. 2, is a plan view of the same. Fig. 3, is a fragmental vertical sectional view of a portion of the main frame, showing the manner of securing the lever thereto. Fig. 4, is a view in side elevation of a modification of my apparatus; and Fig. 5, is a plan view thereof.

Similar letters refer to like parts throughout the different views of the drawings.

In view of the fact that my apparatus is applicable to almost any kind of a spring actuated mechanism, and that the operation and construction of clock mechanisms are so well understood, I have not shown minutely, and shall not specifically describe and set forth the action of the various parts of said mechanisms, but have simply shown the mechanisms illustrated to a sufficient degree to demonstrate the applicability and operation of my device, and shall refer to the mechanism in a general way only.

A′ represents the main frame of a clock mechanism, or of a spring-motor or any other device, in which springs are used for operating purposes, upon which frame is journaled in the ordinary manner the cogged gears B, C, and D, which engage with each other by means of their cogs, as is apparent.

Directly beneath the shaft D′, upon which the gear D, is mounted is journaled the driving or main shaft E, upon which is mounted a pinion E′, indicated by dotted lines, which meshes with the gear D, as is clearly seen in Fig. 1. The shaft E, extends through one side of the main frame A, as shown at *a*, and has rigidly secured to its outer end a wheel F, which is provided on its periphery with laterally extending ratchet teeth *f*, with which the end of the winding lever G, engages in the operation of winding the spring, as will presently be explained.

Within the frame A, and between the wheel F, and pinion E′, (shown in dotted lines, Fig. 1,) and to the shaft E, is secured one end of the operating spring G′, the other end of which spring is secured to the end of the frame or otherwise if desired.

Mounted on the shaft E, and adjacent to the pinion E′, is a ratchet wheel E^2, which engages with a pawl *e*, which prevents the spring being unwound too rapidly as is well understood, and does not need further explanation here.

To the outer surface of the frame A, and at a suitable point, is fulcrumed the winding lever G, which may be made of any desired length, and located in any proper position. This lever is fulcrumed on a forked swivel I, as is clearly shown in Fig. 3, which permits of the vertical and lateral movement required in the operation of winding. As shown the swivel I, is pivoted on the frame A, and has its outer portion bifurcated or formed with two prongs *i*, between which the lever G, is placed, and secured by means of a pin *i′*.

To the outer surface of the frame A, and at a proper point to engage with the lever G, is secured a compensating spring *k* which will force the opposite portion of the lever into contact with the ratchet-teeth *f*, on the wheel

F, yet will yield sufficiently to allow the said wheel to turn in the unwinding of the spring on its shaft.

By reference to Figs. 1, and 2, it will be seen and clearly understood that by pressing down on the free end of the lever G, the other end will engage with the ratchet-teeth *f*, on the wheel F, and will turn the same in the proper direction to wind the spring G′, and that by reason of the angular form of the teeth *f*, the lever will pass freely over them when the free end is lifted, but will be forced laterally into place by means of the spring *k*, which is placed as above set forth for this purpose.

In Figs. 4, and 5, I have shown a modification of my device in which the construction and position of the lever is the same as above described, and it is designed to engage with the ratchet-teeth *f*, on the wheel F, in a similar manner, but automatically. In order to accomplish this end I employ the main frame A, as before, and journal the shaft E, with its spring G′, ratchet E^2, pulley L, and wheel F, therein. As shown in Fig. 5, the pulley L, is mounted on the shaft E, and has a belt M, which passes over it, and a pulley L′, which is mounted on a shaft N, located and journaled in the other portion of the main frame.

Mounted on the shaft N, is another pulley L^2, which is geared to the pulley L^3, on the the shaft N′, by means of a belt M′. The shaft N′, is journaled directly above the shaft N, and has one of its ends extended beyond the side of the frame A, upon which extended portion is secured a cam O, which contacts with the free end of the lever G, as is clearly shown in Fig. 4, and by reason of its projections, in its revolution produce an alternating movement of the lever, which will engage at its other end with the teeth *f*, on the wheel F, and will wind the spring automatically, and in a similar manner as if done by hand.

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

1. In a device for winding springs for motors, the combination of a clock or motor mechanism, a forked swivel pivoted on the main frame, a lever fulcrumed to the forked swivel, and a ratchet-wheel mounted on the driving shaft and adapted to be engaged by the lever, substantially as set forth.

2. In a device for winding springs for motors, the combination of the lever G, the compensating spring *k*, the forked swivel I, and the wheel F, having the teeth *f*, to engage with the lever, and mounted on the driving shaft, all constructed, arranged and operating substantially as shown and described and for the purpose set forth.

SILAS BAKER.

Witnesses:
CHAS. C. TILLMAN,
E. A. DUGGAN.