

J. N. RICE.

DEVICE FOR WINDING CLOCKS.

No. 176,060.

Patented April 11, 1876.

Fig. 1.

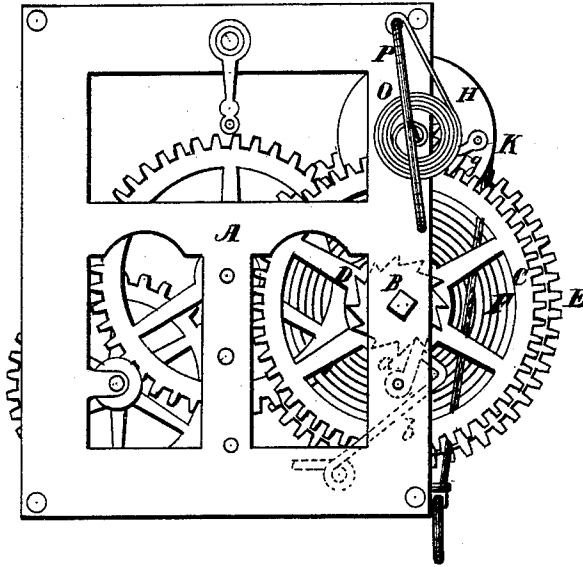
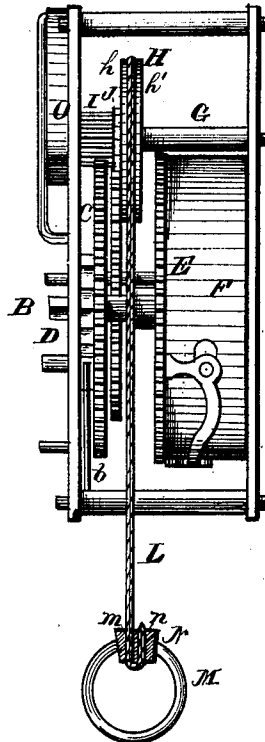


Fig. 2.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

JAMES N. RICE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
HIS RIGHT TO E. J. SAYLOR, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR WINDING CLOCKS.

Specification forming part of Letters Patent No. **176,060**, dated April 11, 1876; application filed
March 30, 1876.

To all whom it may concern:

Be it known that I, JAMES N. RICE, of Pittsburgh, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Device for Winding Clocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved winding attachment for clocks.

In the drawings, Figure 1 is a front elevation of a clock having my invention combined therewith, and Fig. 2 is a side elevation of the same.

My invention consists, first, in the combination, with the main arbor of a clock, of a recoil drum-winding mechanism, the same secured to a shaft or pinion between the clock plates or frames; second, in the combination, with a pinion-shaft, having its bearings in the clock frames or plates, of a revolving drum, having a grooved periphery, for the reception of a flexible cord, chain, or tape; third, in the combination, with the main arbor, provided with a main winding-wheel, of a winding-drum, secured to a pinion-shaft and a spring-click, to lock the drum to a ratchet on said pinion-shaft when the drum is turned in one direction; fourth, in the combination, with the drum, arbor, or pinion, arranged between the clock frames or plates, of a recoiling-spring, one end of which is secured to the outer end of the pinion, while the opposite end of said spring is secured to some fixed object on the clock-frame.

A represents the front frame of an ordinary clock, and B is the winding-arbor, having the wheel C and ratchet D rigidly secured thereto. The pawl or click *a* is kept in contact with the ratchet D by means of the click-spring *b*, secured to the inner side of top frame A. The main wheel E and spring F are combined with the arbor B, as in ordinary clocks, the inner end of the spring being secured to a hook or staple on the arbor-shaft, while the outer end of the spring is attached to the rim of the main wheel. Immediately above the main

wheel E a pinion-shaft, G, has its bearings in the front and rear frame of the clock, and upon said shaft or arbor the winding-drum H is secured. To the shaft G the pinion I and ratchet-wheel J are loosely secured, the latter serving as a bearing for the outer face of the revolving drum H. Pawl or click K is pivoted to the outer face of the drum H, and said pawl is kept in contact with ratchet-wheel J by means of the click-spring *g*, which is attached to the drum. Pinion I, which may be a lantern, rolling, or solid pinion, meshes with the wheel C, and, as the pinion-shaft is turned toward the right, wheel C and the arbor to which the main or driving spring are attached are revolved toward the left, thereby operating to wind up the spring on its arbor. Winding-drum H consists of two plates, *h h'*, placed at a sufficient distance apart to admit of a single turn of the wire-cord L, the inner end of the cord being secured to the drum, while its free end may pass through a staple attached to the clock-post, and is detachably secured to a ring, M, as follows: The shank N of the ring is perforated at *m*, and through said perforations the wire-cord is drawn. The end of the cord is then turned back upon itself, and said end is inserted in a hole, *n*, that extends through the shank, so, that the ring being depressed, the cord is securely fastened thereto, while, by slipping the ring back upon the cord, the bent end of the cord is disengaged from the shank, when the cord is straightened and the ring slipped from the cord. The inner end of an auxiliary spring, O, is secured to the outer end of the pinion-shaft G by inserting the same in a slot cut in the end of the shaft, or in any desired manner, and the outer end of the spring may be secured to the spring-guard P, or to any portion of the clock-frame.

The operation of the winding attachment is as follows: The mainspring having run out, the cord is pulled downward, turning the winding-drum, and also the pinion-shaft, as the drum and shaft are connected by the pawl and ratchet K J. The pinion I, meshing with the wheel C, turns the same, and with it the spring-arbor, and winds up the spring. As the winding-drum is revolved in one direction by the force applied to the cord, the auxiliary

or recoil spring, secured to the end of the pinion-shaft, is wound in the opposite direction, and serves to wind the cord around the winding-drum, when the cord is released.

Instead of securing the pinion I loosely to the shaft, it may be rigidly attached thereto, and the winding-drum loosely attached to the shaft, and the spring arranged against the rear surface of the winding-drum.

A clock furnished with a winding attachment constructed substantially as above set forth may be easily wound, by simply operating the cord, and, as the cord may pass through the bottom of the clock-case, there will be no necessity for opening the case to rewind the clock movement.

By combining the winding-drum with a pinion-shaft, arranged between the clock-frames, the winding-drum takes but little space for its free working, and the wear on its bearing is evenly disposed between the front and rear frames.

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

1. The combination, with the main arbor of a clock, of a winding-drum, arranged on a pinion-shaft between the clock frames or plates and suitable intervening gearing, whereby the mainspring may be wound by the rotation of

the winding-drum, substantially as and for the purpose specified.

2. The combination, with a pinion-shaft, arranged between the clock-frames, of a revolving drum, formed with a grooved periphery for the reception of a cord, substantially as and for the purpose specified.

3. The combination, with the main arbor, having a main winding-wheel rigidly secured thereto, of a winding-drum, rigidly attached to an independent pinion-shaft, and a spring-click, to lock the drum to a ratchet on the pinion-shaft when the drum is turned in one direction, substantially as and for the purpose described.

4. The combination, with the pinion-shaft, carrying the winding-drum, said pinion-shaft being arranged between the clock-frames, of a recoil-spring, one end of which is secured to the pinion-shaft, while the other end of the spring is secured to the frame, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of March, 1876.

JAMES N. RICE.

Witnesses:

F. O. McCLEARY,
E. I. NOTTINGHAM.