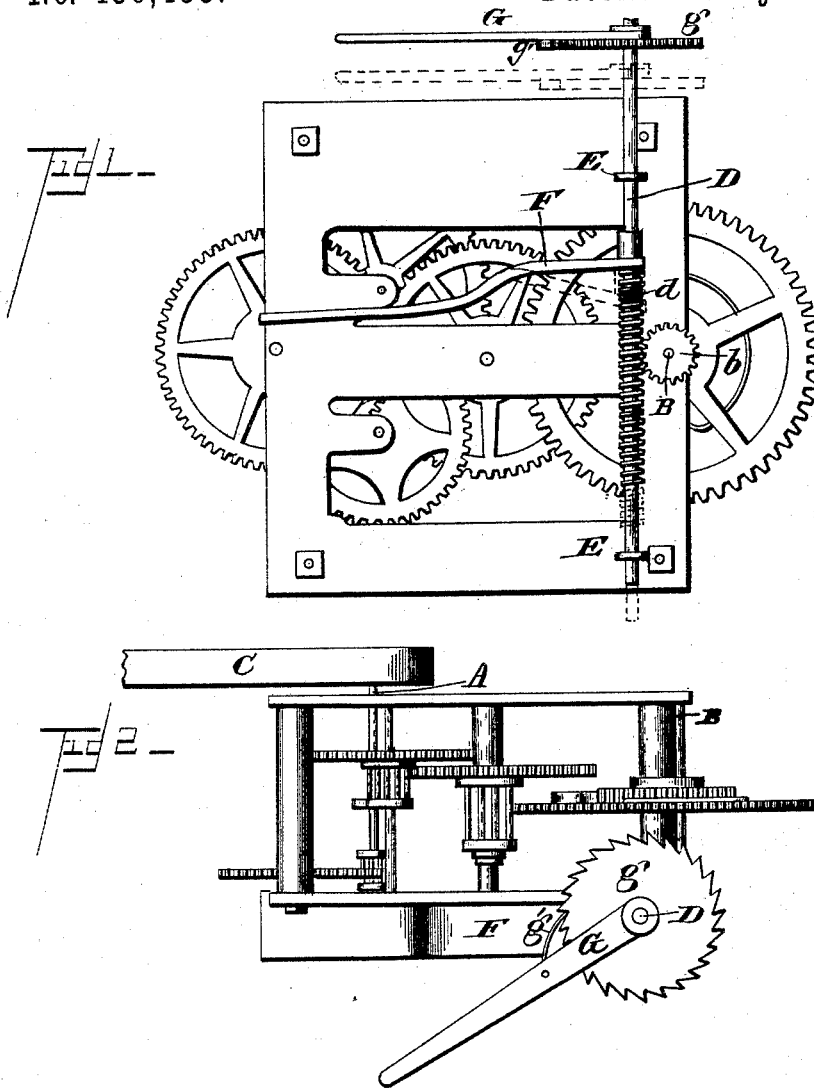


(No Model.)

H. H. WILLBURN.  
SPRING MOTOR.

No. 456,455.

Patented July 21, 1891.



WITNESSES  
*J. L. Curran*  
*Van Buren Hillyard.*

INVENTOR  
*Hewitt Herd Willburn*  
By *R. A. Sacy*  
his Attorney.

# UNITED STATES PATENT OFFICE.

HEWITT HERD WILLBURN, OF RITZVILLE, WASHINGTON.

## SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 456,455, dated July 21, 1891.

Application filed December 18, 1890. Serial No. 375,120. (No model.)

*To all whom it may concern:*

Be it known that I, HEWITT HERD WILLBURN, a citizen of the United States, residing at Ritzville, in the county of Adams and State of Washington, have invented certain new and useful Improvements in Spring-Motors; 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 appertains to make and use the same.

This invention relates to motors, and especially to that class which is operated by spring.

The object of the invention is to economize space and simplify the construction of spring-motors and render the replacement of the spring a comparatively easy task.

The improvement consists of a flat spring and a longitudinally-movable rod or shaft having engagement with the said spring, whereby a movement of the said rod or shaft in one direction will compress the spring and a movement in the opposite direction will set the train of gearing in motion.

The improvement also consists of the novel features which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a front view of a motor embodying my invention, the operation of the spring and the rod or shaft being shown by dotted lines. Fig. 2 is a top plan view of the motor.

The train of gearing may be of any suitable construction and may comprise as few or as many pinions, shafts, and gear-wheels as required. The shaft A, from which the power is taken in any convenient manner, as by the belt C, which passes over a band-wheel on the said shaft, is connected by suitable gearing with the shaft B, which latter is provided with the pinion *b*, that is in engagement with the rod or shaft D, the latter being fitted in bearings E, so as to slide longitudinally therein. The flat spring F is secured at one end to the frame of the motor, and its other end is con-

structed to engage with the said rod or shaft D, so as to move therewith in its longitudinal motion. As shown in Figs. 1 and 2, the rod or shaft D is adapted to rotate as well as move endwise in its bearings, and is provided with a worm-thread *d*, which meshes with the pinion *b*, the rod or shaft being turned by means of the ratchet-wheel *g*, the lever G, and the pawl *g'*.

The operation of the invention is as follows: When the rod or shaft D is turned, the worm-thread thereon engaging with the pinion *b*, which acts as a nut, the said rod or shaft receives a longitudinal motion and compresses the free end of the spring. After the spring is sufficiently compressed the rod or shaft is released from external force, and, being acted on by the spring, which has a tendency to resume its normal position, is moved back to its starting-point, and the thread *d*, meshing with the pinion, the rod or shaft having a longitudinal motion only on the return-stroke, turns said pinion and sets the train of gearing in motion. Obviously, when compressing the spring, the train of gearing is not set in motion as the thread *d* rides on the teeth of the pinion, owing to the rotary motion being imparted to the said rod or shaft.

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

In a motor, the combination, with the shaft B, having pinion *b*, and the spring F, of the worm-threaded shaft D, mounted in bearings and adapted to turn and slide longitudinally in the said bearings and having engagement with the said pinion and with the said spring, and means for turning the shaft to move it longitudinally and compress the spring, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HEWITT HERD WILLBURN.

Witnesses:

P. D. OLIPHANT,  
CARROLL LEE.