

F. D. EVERETT & A. DUBROY Spring Motor.

No. 202,010.

Patented April 2, 1878.

Fig. 1.

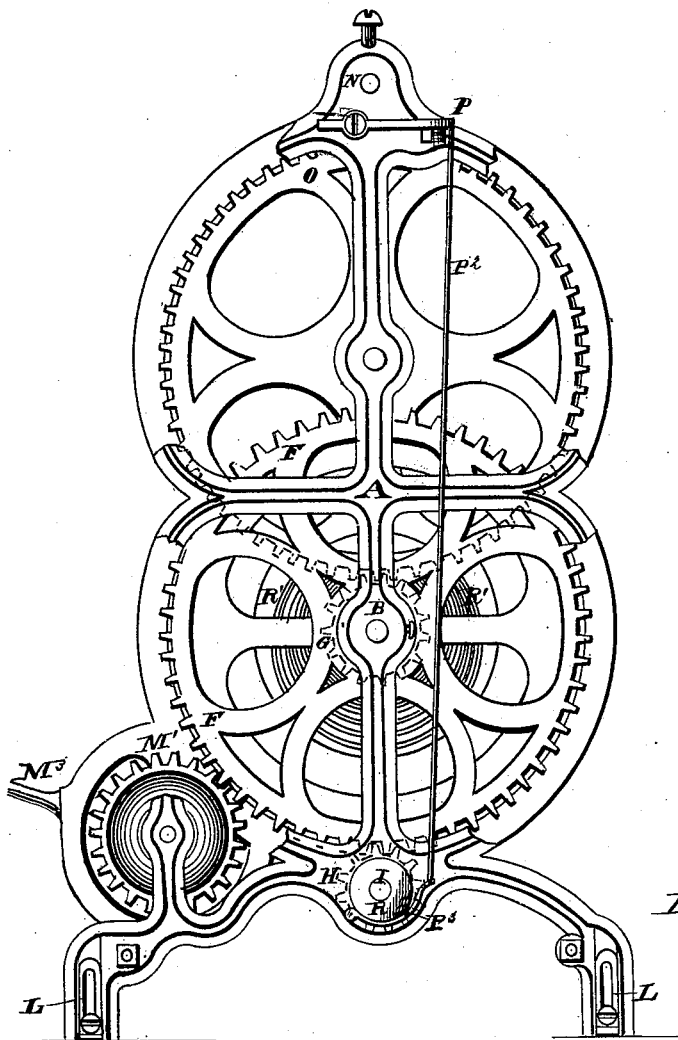
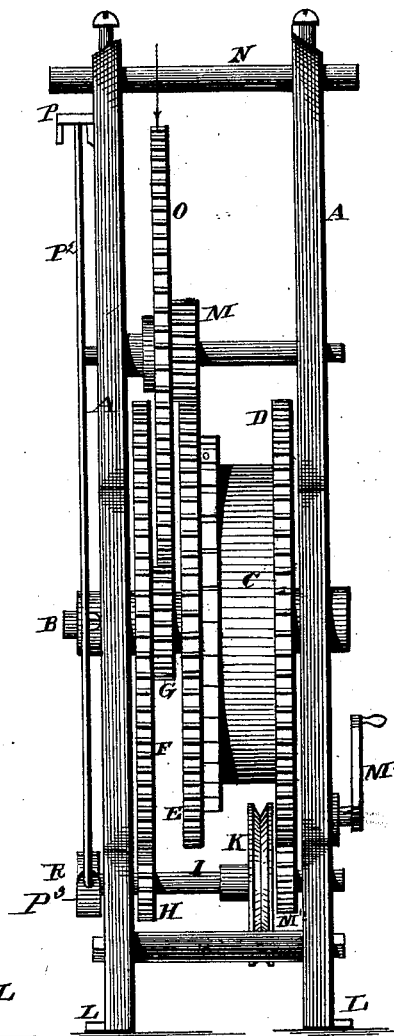


Fig. 2.



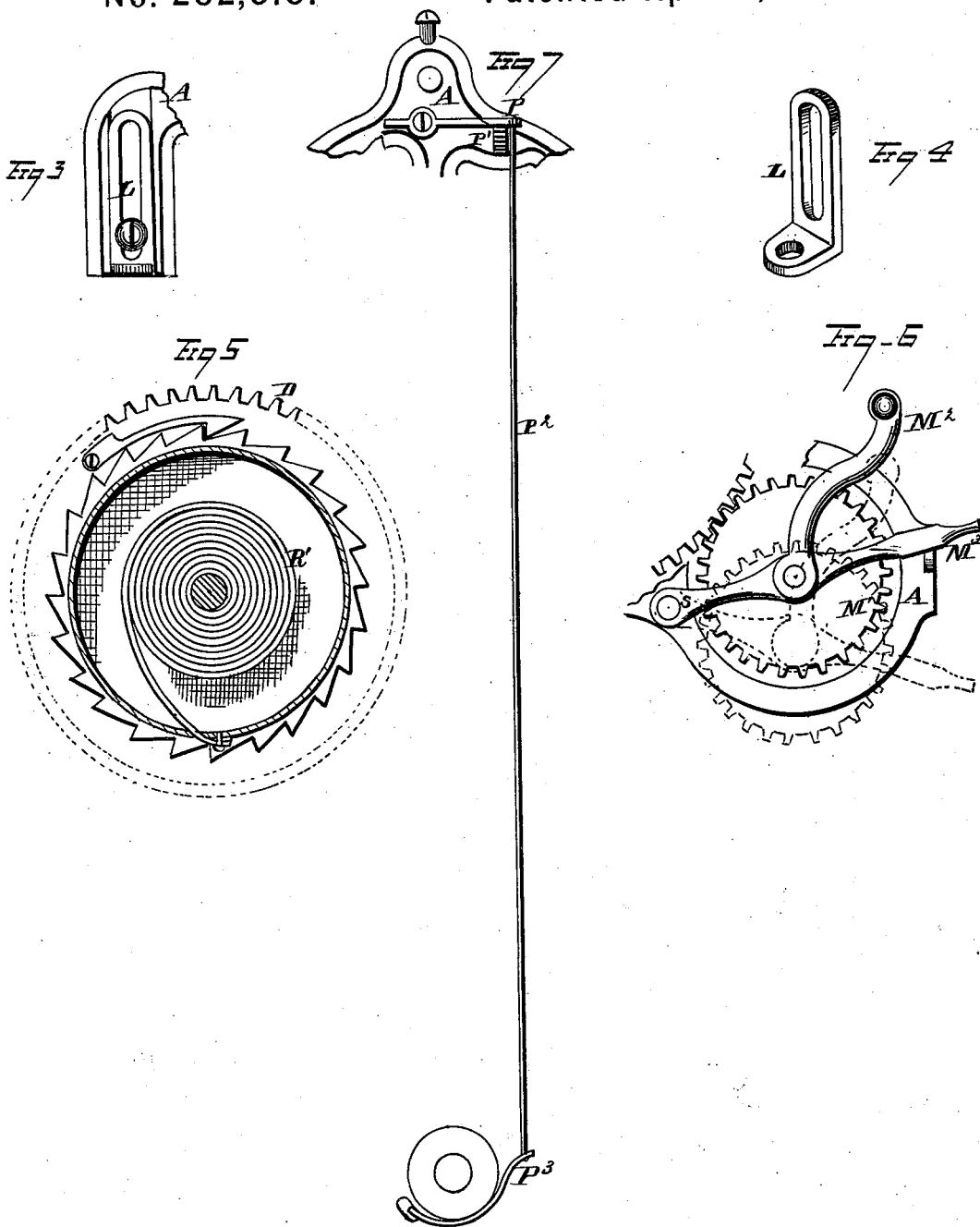
WITNESSES
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A. M. Bright.

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UNITED STATES PATENT OFFICE.

FRANK D. EVERETT AND ANTHONY DUBROY, OF CLEVELAND, OHIO.

IMPROVEMENT IN SPRING-MOTORS.

Specification forming part of Letters Patent No. 202,010, dated April 2, 1878; application filed March 14, 1878.

To all whom it may concern:

Be it known that we, FRANK D. EVERETT and ANTHONY DUBROY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Spring-Motors; and we 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.

Our invention relates to spring-motors, especially to that class popularly adapted to light work, such as sewing-machines, clothes-wringers, dental engines, &c.; and it consists, primarily, of a fixed and stationary central shaft, to which is attached one end of a spring, said spring connecting said stationary shaft and the periphery of a drum or its equivalent; also, in producing motive power by attaching one end of a spring to a fixed stationary shaft or axle, and the other to the periphery of a drum or its equivalent, thus transmitting the entire power to the periphery instead of the axle, as has heretofore, as far as our knowledge extends, been done. It further consists in a suitable connection, by which the power of the spring can be applied through gear-connections to do light work, such as running sewing-machines, washing-machines, dental engines, scroll-saws, &c.; also, in an improved friction-brake, whereby, through pedal-pressure or any other means, the speed of the machine may be regulated and controlled by any given degree of braking employed.

In the drawings, Figures 1 and 2 are elevations of our device. Figs. 3 and 4 show the movable or adjustable feet, and the manner of attachment. Fig. 5 shows, in detail, a longitudinal section of the driving-drum, its gear, and pawl-and-ratchet attachment, and the method of construction and operation of the driving-spring; Fig. 6, the winding device, and how it is thrown out of gear after performing its office; Fig. 7, the brake, connecting-rod, and pedal arrangement for operating the brake.

A represents any suitable frame for containing and accommodating the working parts of

our device and their functions. B is a fixed and stationary shaft or axle, on which revolves the drum C, carrying its two gear-wheels D and E; also the gear-wheel F and pinion G. The gear-wheel F meshes into the pinion H, which is fixed to shaft I, carrying the pulley K; also a friction cylinder or wheel, R, to which the brake apparatus is applied for regulating the speed or stopping the motor. M O are connecting wheel and pinion, whereby the revolution of the wheel E is communicated to the pulley K through the medium of the pinion G, the wheel F, and the pinion H. L L are feet adjustably attached to the frame of our device, and so constructed that the frame may be attached to sewing or other machines that vary in size or height. M¹ is a gearing, meshing into gearing-wheel D, and by which the spring is wound up. After it has performed its functions it may be thrown out of gear by the lever M³. N represents the cross rod or brace running between the legs of a sewing-machine, and to which it is proposed to attach the lower part of the frame A of this device, while the upper part of the frame A is attached to the table of the machine by the adjustable feet L when used in connection with a sewing-machine. P represents the pedal-pressure or place for the application of power by which the brake is regulated. It is connected with the shoe-brake P³ by the rod P². P¹ is a ratchet, by which the degree of pedal-tension may be regulated and maintained.

In the operation of my device the first requisite is winding, and this is performed by the crank M², which acts to reverse the motion of the drum C from that imparted to it by the action of the spring, thus by its attachment with said spring operating to wind up the spring around its fixed and stationary shaft B. The motion resulting from the uncoiling of the spring R' is a reversal movement to the barrel C and its attached gearing, said reversal movement being the normal direction of movement in the machine. By attaching the free end of the mainspring to the peripheral portion of the driving-drum C, the force of the spring is applied to better advantage than would be the case had the opposite end of the mainspring been fixed and made to turn the

central shaft B, as has always been the case heretofore, as far as we are aware.

In order to increase the driving-power of our device, it is only necessary to increase the size or strength of the driving-springs. A similar result may be accomplished by multiplying the number of driving-springs, and causing them to act together as the initial motive power.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A motor consisting of a fixed and stationary shaft or spindle and a surrounding revolving drum or its equivalent, and a driving-spring connecting said fixed spindle and the rim or periphery of the drum, substantially as and for the purposes shown.

2. The stationary spindle B, the spring R', drum C, and suitable gear-connections with drum C for utilizing its revolutions when driven by spring R', substantially as and for the purposes shown.

3. The fixed spindle B, spring R', drum C,

and gear E M O G F H or its equivalent, substantially as and for the purposes shown.

4. The combination, with the friction-pulley K, placed on any suitable shaft of the machine, the friction device P, P¹, P², and P³, substantially as and for the purposes shown.

5. In connection with suitable gear for utilizing the force and motion imparted by a spring, a cog-wheel, drum, or their equivalents, at or near the rim or periphery of which is attached the moving end of said spring, while the other end of this spring is attached to a fixed and stationary axle, substantially as and for the purposes shown.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK D. EVERETT.
ANTHONE DUBROY.

Witnesses:

F. TOUMEY,

W. E. DONNELLY.