

No. 630,895.

Patented Aug. 15, 1899.

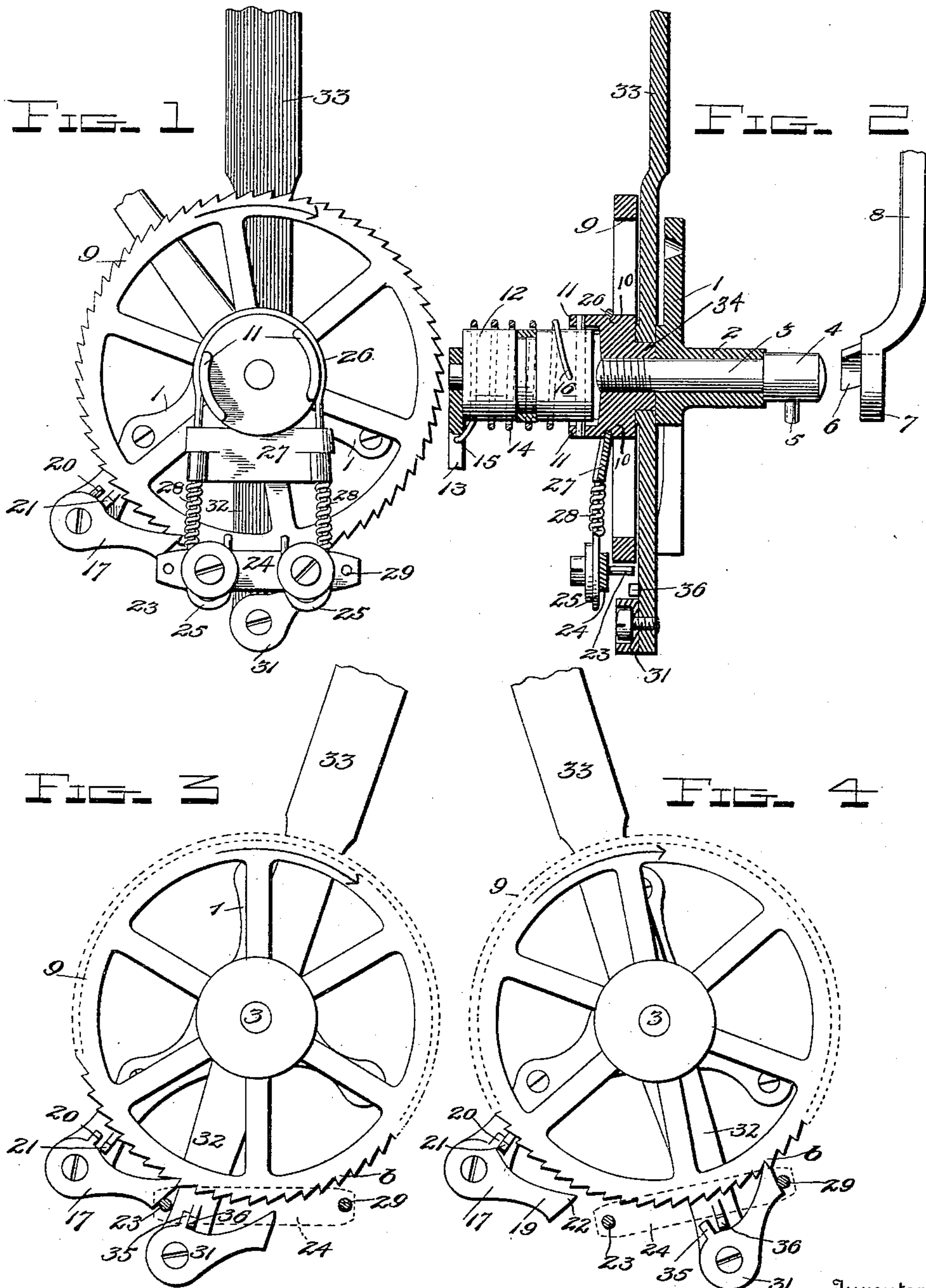
J. JOSEFKOWICZ.

SPRING MOTOR.

(Application filed May 13, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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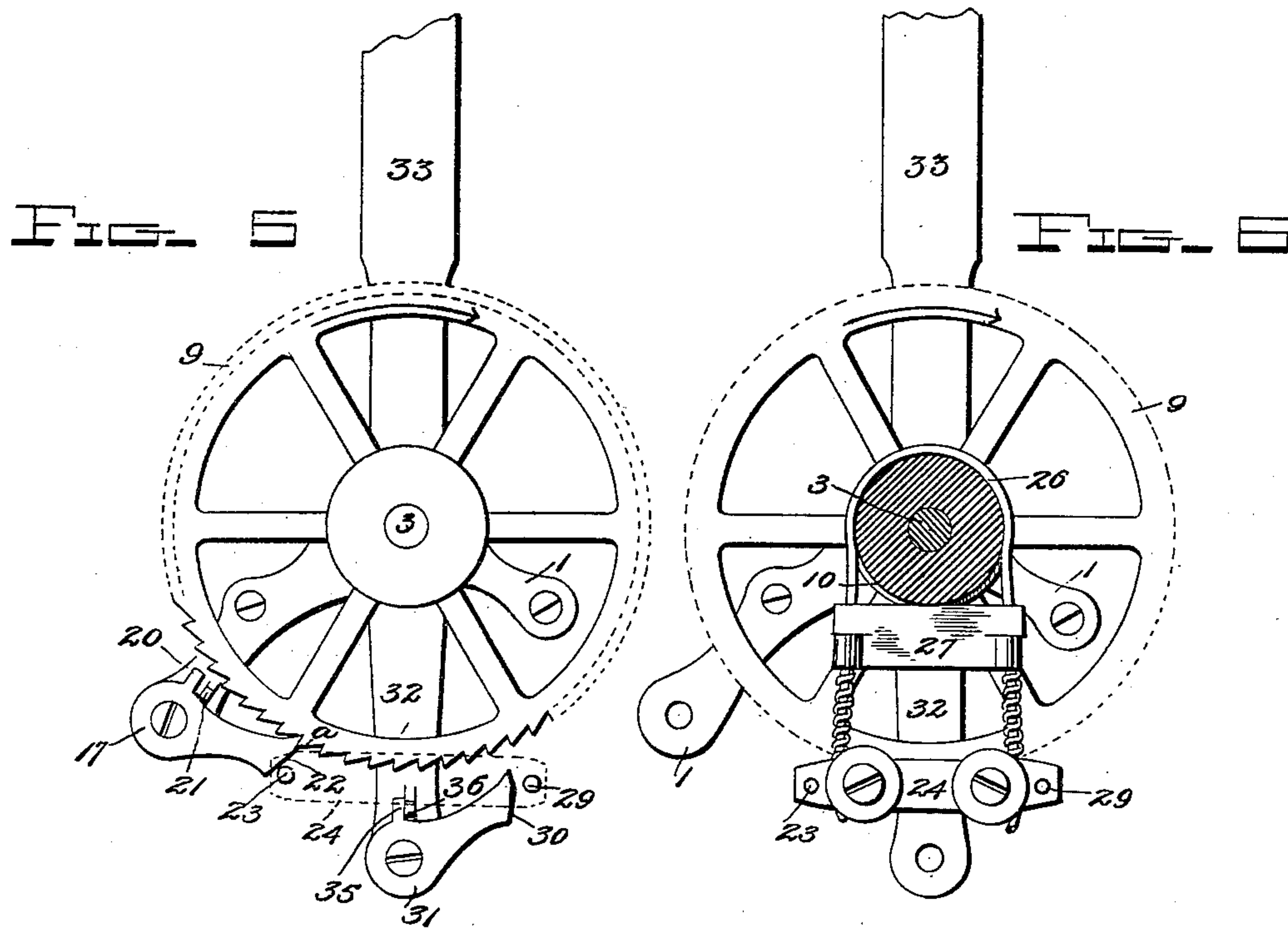
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# UNITED STATES PATENT OFFICE.

JOHN JOSEFKOWICZ, OF STEVENS POINT, WISCONSIN, ASSIGNOR TO  
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## SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 630,895, dated August 15, 1899.

Application filed May 13, 1899. Serial No. 716,625. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JOSEFKOWICZ, a citizen of the United States, residing at Stevens Point, in the county of Portage and State of Wisconsin, have invented certain new and useful Improvements in Oscillating Spring-Motors; and I do 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.

My invention relates to an improved spring-actuated motor for imparting an oscillatory or reciprocating movement to swinging signs, fans, or cradles, as well as being adapted to a variety of other purposes; and the object is to provide a simple, inexpensive, durable, and reliable device of this character.

To this end the invention consists in the construction, combination, and arrangement of the several parts of the device, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same reference characters indicate the same parts of the invention.

Figure 1 is a front elevation of my improved spring-actuated motor. Fig. 2 is a vertical section. Fig. 3 shows the position of the pawls when the oscillating lever is at one end of its stroke. Fig. 4 is a similar view when the said lever is at the opposite end of its stroke. Fig. 5 is a similar view showing the position of the pawls when said lever is midway between the limit-points of its stroke and moving in the direction of the arrow. Fig. 6 is a transverse section through the circumferential groove in the hub of the escapement-wheel.

1 denotes a bracket which is fixed to a suitable support, and it is provided with an integral sleeve 2, in which is journaled a shaft 3, the projecting end 4 of which is provided with a lateral pin 5 to engage the shoulder 6 on the encompassing hub 7 of the removable crank-key 8, which is used to turn the shaft when winding the mainspring.

To the inner end of the shaft 3 is fixed a ratchet-toothed escapement-wheel 9, the hub of which is formed with a circumferential

groove 10 and with the oppositely-disposed longitudinal ears 11 11, between which a rivet passes, as shown in Fig. 2, to secure the contiguous end of the sectional shaft 12, the opposite end of which is journaled in a fixed support 13. A spiral mainspring 14 encompasses this shaft, one end 15 thereof being fixed to the support 13 and the other end 16 to the shaft 12. The shaft 12 is preferably made in sections, as shown in Fig. 2, so that its length may be increased or diminished at will to receive a mainspring, such as 14, which will conform to the length of said shaft, and as the motor runs for a period of time corresponding to the length of said spring it may be arranged to run for any reasonable length of time by varying the length of said shaft and spring to correspond thereto.

17 denotes a gravity-pawl fulcrumed on a stud-screw 18, fixed to the bracket 1, with its toothed end 19 projecting into the path of the teeth on the escapement-wheel 9. This pawl 17 is provided with a radial limit-pin 20, which when the pawl is not in engagement with said teeth rests against a fixed lug 21 on the bracket 1 and serves to limit the downward movement of the pawl. The lower face 22 of the free end of the pawl is rearwardly beveled, as shown, and this beveled face projects into the path of the lateral pin 23, fixed on one end of a bar 24, which is adjustably secured to and travels with the outer ends 25 of a U-shaped yoke 26, the looped end of which encompasses the grooved hub of the escape-wheel 9 and is held in frictional contact therewith by a connecting-bar 27, the outer ends of which have a sliding engagement with the parallel arms of said yoke, and this connecting-bar is held in frictional contact with said hub by the coiled springs 28 28, which encompass the parallel arms between the bars 24 and 27. The opposite end of the bar 24 is also provided with a lateral pin 29, which projects into the path of the beveled face 30 of a gravity-pawl 31, the free end of which projects into the path of the teeth on the escape-wheel, and said pawl is fulcrumed on the lower arm 32 of the oscillating lever 33, which in turn is fulcrumed on the sleeve 34, formed on the inner face of the hub of



the escape-wheel. This pawl 31 is also provided with a radial limit-pin 35, which when said pawl is not in engagement with said teeth rests against a fixed lug 36 on the lever-arm 5 32 and serves to limit the downward movement of said pawl. Both of the limit-pins 20 and 35 and the lateral pins 23 and 29 are preferably encompassed by a short piece of rubber tube, which serves to deaden the "click" 10 or sound caused by the pins striking the lugs or the pawls striking the pins when the pawls drop out of engagement with the escape-wheel.

The mainspring having been wound up, as 15 heretofore described, its tension is exerted to rotate the escape-wheel in the direction of the arrow shown on the wheel in several of the figures. Assuming that the lever 33 is stationary and in the position shown in Fig. 5, 20 with the pawl 17 in engagement with the tooth *a* on the escape-wheel, the pawl is held in this position by the tension of the mainspring exerted on the tooth and also by the pin 23 resting against the beveled face 25 of the pawl, and at the same time the pawl 31 is out of engagement with the escape-wheel, it being supported in this position by its limit-pin 35 resting against its lever-lug 36, if now it is desired to start the motor the 30 lower end of the lever is given an impetus to the right, the momentum of which causes the beveled face of the pawl 31 to ride up on the pin 29 and project it into the path of the tooth *b* immediately behind the point of the 35 preceding tooth, the continued momentum of the pawl 31 in the same direction causing it to carry the pin 29 with it, and consequently the bar 24, which withdraws the pin 23 from the path of the pawl 17, which is now supported solely by its contact with the tooth *a*. 40 The impetus given to the lever causes its pawl to strike the tooth *b* with sufficient momentum to impart a very slight rearward movement to the escape-wheel, just sufficient, in fact, to 45 permit the tooth *a* to release the pawl 31, which falls by gravity with its free end out of the line of the teeth on the escape-wheel, being supported in this position by its pin resting against the lug 21. The entire tension of 50 the spring-actuated escape-wheel is now imparted to the pawl 31 through the medium of its tooth *b*, which, overcoming the momentum of the lever, causes its lower end to start on its return movement to the left. The escape- 55 wheel, the lever, and the yoke carrying the bar 24 now move in unison and the pin 23 on said bar strikes against the inclined face of the pawl 17 and raises it immediately after its free end has cleared the tooth *a* and so 60 that it will project into the path of the next succeeding tooth *c*, which now engages the pawl 17, and consequently arrests the further movement of the escape-wheel, and while said escape-wheel is thus stationary the impetus 65 given to the lever by the escape-wheel causes

it to continue its movement a sufficient distance to release its pawl 31 from the tooth *b* and drop below, with its pin 35 resting on the lever-lug 36. The momentum of the lever 70 having ceased, the parts are left in the position first described, and the lever, acting by gravity, starts on its return movement, with a like result to that hereinbefore set forth, and the escape-wheel continues to impart this oscillating or pendulating movement to said 75 lever as long as there is any tension in the mainspring.

The accompanying drawings show my invention in the best form now known to me; but many changes in the details might be 80 made within the skill of a good mechanic without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Having thus fully described my invention, 85 what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. In a motor of the class described, a spring-actuated escape-wheel, a lever fulcrumed axially concentric with said escape-wheel, a fixed 90 pawl and a pawl carried by said lever, a yoke carried by said wheel, a bar carried by said yoke, lateral pins carried by said bar and co-acting with said pawls to alternately project 95 them into the path of the teeth on said escape-wheel, as and for the purpose set forth.

2. In a motor of the class described, the stationary bracket, the shaft journaled in said bracket, the spring-actuated escape-wheel 100 fixed on said shaft, and the lever fulcrumed on said wheel, a pawl carried by said lever, and a pawl fulcrumed on said bracket, a yoke frictionally mounted on said wheel, a bar carried by said yoke, and a pair of lateral pins 105 fixed to said yoke and projecting into the path of said pawls, as and for the purpose set forth.

3. In a motor of the class described, the combination with the escape-wheel, the lever 110 fulcrumed axially concentric therewith, a gravity-pawl fulcrumed on said lever, a second gravity-pawl fulcrumed on a fixed support, the yoke carried by the escape-wheel, the spring-actuated connecting-bar encompassing the parallel arms of said yoke, the 115 cross-bar adjustably secured to the free ends of the arms of said yoke, and the lateral pins fixed to said cross-bar and arranged to alternately lift said gravity-pawls into engagement 120 with said escape-wheel, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN JOSEFKOWICZ.

Witnesses:

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JNO. J. BUKOLT.