

N<sup>o</sup> 1039



A.D. 1912

(Under International Convention.)

Date claimed for Patent under Patents and Designs Act, 1907, being date of first Foreign Application (in France), } 10th Mar., 1911

Date of Application (in the United Kingdom), 13th Jan., 1912

At the expiration of twelve months from the date of the first Foreign Application; the provision of Section 91 (3) (a) of the Patents and Designs Act, 1907, as to inspection of Specification, became operative

Accepted, 6th June, 1912

#### COMPLETE SPECIFICATION.

#### Improvements in or relating to Automatic Electric Winding Mechanism for Clocks and the like.

We, SOCIÉTÉ ANONYME DES HORLOGES ELECTRIC-SILENTIA, of 130, Grand-rue, Besancon, France, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention has reference to automatic electric winding mechanism for clocks and the like gearing wherein the motive power is supplied by a spring or falling weight, and more particularly to a simplified switch device whereby the circuit of a rotary electric motor is made and broken at the proper times.

10 The switch device according to this invention is characterized by a spring-actuated pivoted lever whereby one of the brushes of the motor is moved into and out of contact with the collector to make and break the electric circuit, said lever being itself actuated for this purpose at the proper times by means of a notched disc which is rotatable with an element of the winding mechanism, and by a pin or pins carried by a wheel of the clockwork movement proper  
15 respectively.

In order that the invention may be clearly understood and readily carried into effect reference is made in describing the same to the accompanying drawings wherein;

Figure 1 is a front elevation of the mechanism and

20 Figure 2 is a part view in side elevation of the same.

Referring to the drawings, *a* represents the armature of an electric motor the field of which is formed by a permanent magnet *b*. *c* is the spindle of the armature which drives a worm *d*, whilst *e* is the collector on which rub two brushes *f*, *f*<sup>1</sup> when the circuit of the motor is closed. Each of the brushes *f*, *f*<sup>1</sup> is formed of a spring, one connected to the terminal *g*, the other to the  
25 terminal *g*<sup>1</sup>, these terminals being themselves connected to the poles of a source of electricity *h*.

The worm *d* drives the spring barrel *n* through wheels and pinions *i*, *k*, *l*, *m*. A disc *o* having a notch *p*<sup>1</sup> in its periphery is in fixed connection with the

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*Improvements in or relating to Automatic Electric Winding Mechanism for Clocks, &c.*

barrel *n* and rotates therewith. Below and co-axially with the barrel *n* is disposed the wheel *p* of the clockwork movement, making, say, one revolution per hour. This latter wheel is driven in the ordinary way by the spring of the barrel and drives the clockwork movement comprising *inter alia* the pinions and wheels *q*, *r*, *s*, *t*.

On the plate *v* is pivoted at *u* a lever *w* comprising three arms, two, *x*, *y*, of which each terminate in a nose presenting an inclined face and tending under the action of a spring 3 the one to engage in the notch *p*<sup>1</sup> and the other to extend into the path of a pin *z* fixed on the wheel *p*. The third arm 1 of said lever *w* carries a bent rod 2 which engages the free end of the brush *f*<sup>1</sup>.

The operation of the device is as follows,—

When the nose of the arm *x* of the lever is engaged in the notch *p*<sup>1</sup> under the action of the spring 3, as shown in Figure 1 of the drawings, the rod 2 holds the brush *f*<sup>1</sup> away from the collector *c* so that the electric circuit being now open the motor is stopped. But when the pin *z* comes against the inclined face of the nose of arm *y* the lever *w* is rocked thereby about its pivot against the action of the spring 3, with the result that the rod 2 moves toward the collector *c* and allows the brush *f*<sup>1</sup> to contact therewith.

The electric circuit of the motor being thus closed, the armature of the motor begins to rotate and drives the barrel *n* and the disc *o* in the direction of the arrow 4 (Figure 1) and winds up the spring of the barrel. In the meantime the pin *z* continuing its travel, has released the nose of the arm *y* and the arm *x* being now engaged on the periphery of the disc *o* keeps the lever *w* in position.

When the disc *o* has made a complete revolution the notch *p*<sup>1</sup> again comes opposite the nose of arm *x*.

This nose thus engages again in the notch *p*<sup>1</sup> and allows the lever *w* to rock in the opposite direction, with the result that the rod 2 moves the brush *f*<sup>1</sup> away from the collector *c* so that the motor stops, the electric circuit being broken.

At each revolution of the wheel *p* the operations above described are repeated in the same sequence.

The wheel *p* might however carry more than one pin and the disc *o* have more than one notch. The wheel *p* might also make a revolution in a longer or shorter time than in the example described.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. Automatic electric winding mechanism for clocks and the like comprising a rotary electric motor and a switch device characterized in that one of the brushes of the motor is moved thereby at the proper times into and out of contact with the collector thereon substantially as and for the purposes described.

2. In automatic electric winding mechanism for clocks and the like according to Claim 1, a switch device comprising a spring-actuated pivoted lever which is adapted to operate the movable brush and is itself actuated for this purpose at the proper times by means of a notched disc rotatable with an element of the winding mechanism and by a pin or pins carried by a wheel of the clockwork movement respectively, substantially as and for the purposes herein described.

3. In automatic electric winding mechanism for clocks and the like characterized by a switch device according to Claim 2, forming the said lever with three arms one of which engages the movable brush while the free ends of the other two arms engage one with a notch or notches in the disc and the other with the pin or pins on the moving part of the clockwork, the arrangement being such that when one of the said two arms engages a notch in the disc the lever rocks on its pivot and moves the brush away from the collector thus breaking the motor circuit, whilst on the other hand, when the said pin comes against the end of the other of the two arms of the lever the said brush returns to its first position and again closes the said circuit, substantially as herein described,

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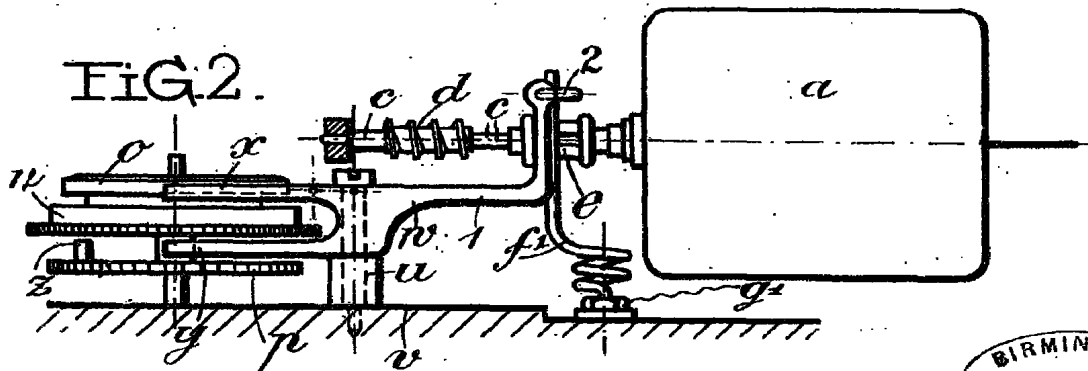
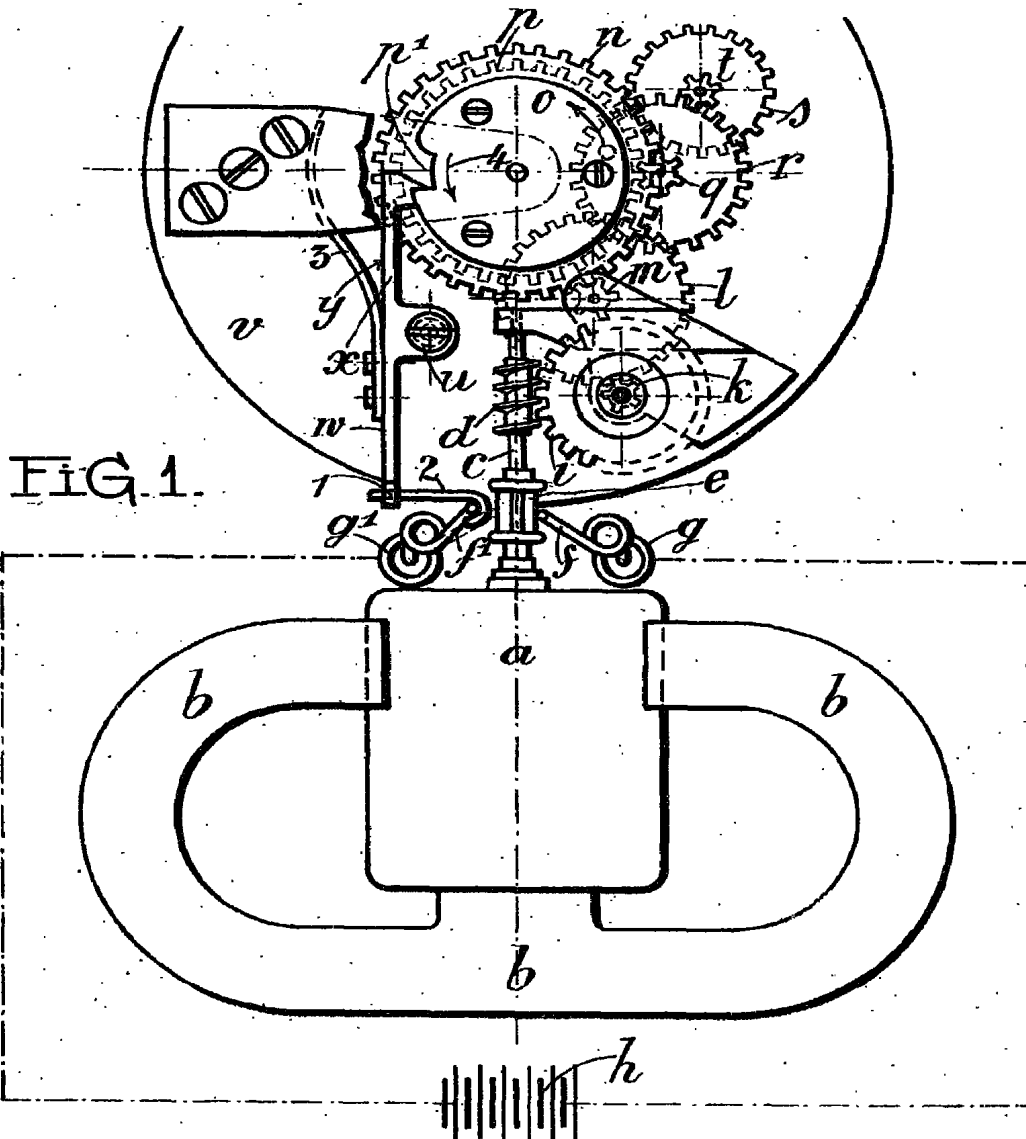
*Improvements in or relating to Automatic Electric Winding Mechanism for Clocks, &c.*

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4. Automatic electric winding mechanism for clocks and the like having a rotary electric motor characterized by a switch device constructed, arranged and adapted to operate substantially in the manner and as and for the purposes described with reference to the accompanying drawings.

5 Dated this 12th of January, 1912.

T. FLETCHER WILSON,  
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