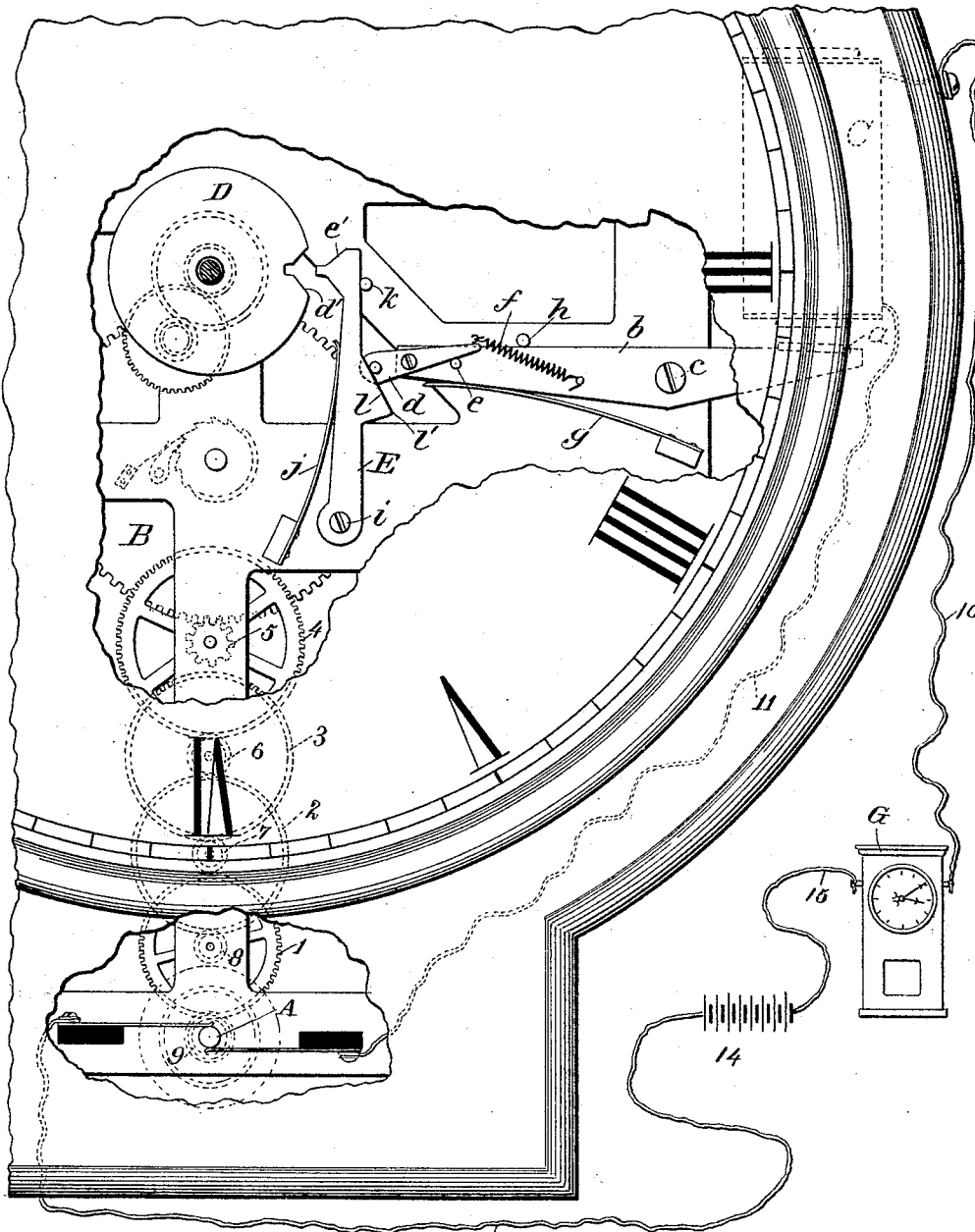


(No Model.)

H. LORIoT.  
ELECTRIC WINDING AND SETTING CLOCK.

No. 526,720.

Patented Oct. 2, 1894.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY LORiot, OF NEW YORK, N. Y., ASSIGNOR TO HENRI F. MOUQUIN,  
TRUSTEE, OF SAME PLACE.

## ELECTRIC WINDING AND SETTING CLOCK.

SPECIFICATION forming part of Letters Patent No. 526,720, dated October 2, 1894.

Application filed October 3, 1893. Serial No. 487,068. (No model.)

### *To all whom it may concern:*

Be it known that I, HENRY LORiot, a resident of the city, county, and State of New York, have invented certain new and useful  
5 Improvements in Clocks, of which the following is a specification.

My present invention relates to that class of clocks which are synchronized periodically from a central or controlling clock by means  
10 of an electric current, and has for its object to perform the operations of winding and synchronizing the clocks by the same electric impulse, thus dispensing with individual batteries for winding each clock.

15 To this end my invention consists in connecting the synchronizing magnet and the winding motor of a clock or a series of clocks in circuit so that they may be actuated by the same electric impulse.

20 My invention further consists in certain improvements in synchronizing devices for clocks whereby a prolonged impulse may be sent through the synchronizing magnet without stopping the clock.

25 My invention is equally applicable to electrically propelled clocks.

Hitherto it has been customary to connect the synchronizing magnets of a series of  
30 clocks in the same circuit, and to wind each clock of the series by means of a motor in an independent local battery circuit. It has also been proposed to wind and synchronize a series of clocks from a controlling clock by means of a single wire. In this arrangement  
35 the synchronizing devices were normally in circuit, and the winding motors were switched in at predetermined times for a short period, the synchronizing devices being cut out while the winding was being effected. By my invention  
40 I dispense with these complications and produce an extremely simple device entirely adequate to perform all the operations of synchronizing and winding.

I attain the object of my invention by the  
45 mechanism illustrated in the accompanying drawing, which shows my improvements applied to an ordinary form of self-winding clock.

In the drawing A is any suitable electric  
50 motor serving through the medium of the train of gears 1, 2, 3, 4, 5, 6, 7, 8, and 9, to wind

the main spring of the clock contained within the going barrel B.

C is the synchronizing magnet, and *a* its armature. The armature *a* is carried on one  
55 end of a lever *b* pivoted at *c* and carrying at its other end a pivoted lever *d*. This pivoted lever *d* is normally held against the stop *e* by a spring *f*. The end of the pivoted lever *b* carrying the lever *d* and connected mech-  
60 anism, is normally pressed by the spring *g* against the stop *h* which serves to limit its upward movement.

D is the synchronizing wheel of the clock, and E the synchronizing lever having the toe  
65 *e'* to enter the notch *d'* in the wheel D to synchronize the clock. The lever E is pivoted at *i* and is normally held out of engagement with the wheel D by the spring *j*. A back stop *k* serves to limit the movement of the  
70 lever E. The synchronizing lever is provided with a cam or projection *l* which extends into the path of the pivoted lever *d*, or the cam may be omitted and the lever *d* be allowed to strike the synchronizing lever to move it. 75

The circuit connections are as follows: From a controlling clock G by wire 10 to and through the synchronizing magnet C thence  
by wire 11 to the motor A and by wire 12 to the battery 14, and by wire 15 to the clock G. 80  
This clock G is provided with a circuit closer arranged to send at predetermined intervals over the circuit an impulse of several seconds duration.

The detailed operation is as follows: The  
85 main spring contained in the going barrel B being first fully wound, the clock is set in motion, and continues to operate in the usual manner of clocks. At a predetermined time the controlling clock G closes the circuit and  
90 a current is sent over the line through the synchronizing magnet C and motor A. Upon the completion of the circuit by the clock G, the magnet C attracts its armature *a* and rocks the lever *b*. As the lever *b* moves the  
95 lever *d* carried thereby will come in contact with the cam *l* and rock the lever E forcing the toe *e'* into the notch *d'* of the synchronizing wheel D and effecting the synchronizing. As the lever *b* continues to move the lever *d*  
100 will pass off the end *l'* of the cam *l*, and the spring *j* will snap the lever E back against

its stop *k* and out of engagement with the synchronizing wheel D, so that during the prolongation of the impulse the wheel D will be free to revolve. As long as the current continues to flow the magnet C will attract its armature *a* and hold the end of the lever *b* carrying the lever *d* depressed, and the lever *d* out of contact with the synchronizing lever. As the impulse comes over the line it will set the motor A in motion to wind the clock spring. This impulse is prolonged for several seconds in order to give the motor time to fully wind the clock for the amount that it has run down.

It will be understood that I may use a clock capable of running several days without rewinding, several of which may be in the same circuit, and synchronize and rewind the same at intervals of a day or less, so that in case of accident to a clock or the circuit, the clocks will continue to run for several days until the defect has been located and remedied.

When the current on line has ceased to flow, the motor A stops, and at the same time, the magnet C is de-energized and the spring *g* rocks the pivoted lever *b* until it comes in contact with its stop *h*. As the lever *b* is returned to its initial position, the lever *d* comes in contact with the cam or projection *l* and is rocked thereby against the tension of the spring *f* until the lever *d* snaps past the end *l'* of the cam or projection *l*. The lever *d* is now returned against its stop *e* by the spring *f*. In order to prevent the toe of the synchronizing lever E from being again forced into the notch *e'* should said notch be opposite the toe while the lever *b* is returning to its initial position, the spring *j* is made stiffer and of greater tension than the spring *f*.

The described operation is repeated at predetermined times, as often as it is desired to synchronize and wind the clocks in circuit.

I do not limit myself to any particular form or type of motor, synchronizer, or clock, as they may be greatly varied without departing from the spirit of my said invention.

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

1. The combination in a clock, of a synchronizing lever, a synchronizing magnet for actuating the same, an electric winding mechanism and circuit connections for the magnet and winding mechanism, all arranged so that the clock may be wound and synchronized by the same electric impulse, substantially as described.

2. The combination in a clock, of a synchronizing lever, a synchronizing magnet for actuating the same, an electric winding mechanism, and a main circuit in which both the synchronizing magnet and the winding mechanism are included, all arranged so that the clock may be wound and synchronized by the same electric impulse, substantially as described.

3. In a clock, an electric winding mechanism, a synchronizing electro-magnet in circuit therewith, a synchronizing lever, and intermediate mechanism between the magnet and synchronizing lever adapted to actuate and release the said lever by one movement, substantially as described.

4. The combination with the magnet C, a synchronizing wheel D, of the pivoted armature lever *b*, the pivoted levers *d* and E, and means for restoring the several levers to their initial positions, substantially as described.

5. A clock having an electric winding mechanism and a synchronizing electro-magnet arranged to be actuated by the same electric impulse, with a synchronizing lever and intermediate mechanism between the magnet and synchronizing lever, adapted to actuate and release the said lever by one movement, substantially as described.

6. A clock having an electric winding mechanism and a synchronizing electro-magnet included in the same electric circuit, with a synchronizing lever and intermediate mechanism between the magnet and synchronizing lever, adapted to actuate and release the said lever by one movement, substantially as described.

HENRY LORiot.

Witnesses:

GEO. E. MORSE,  
JAMES L. SUYDAM.