E. CLARK.

ELECTRICAL-CLOCK.

No. 171,098. Patented Dec. 14, 1875.

Fig. 1.

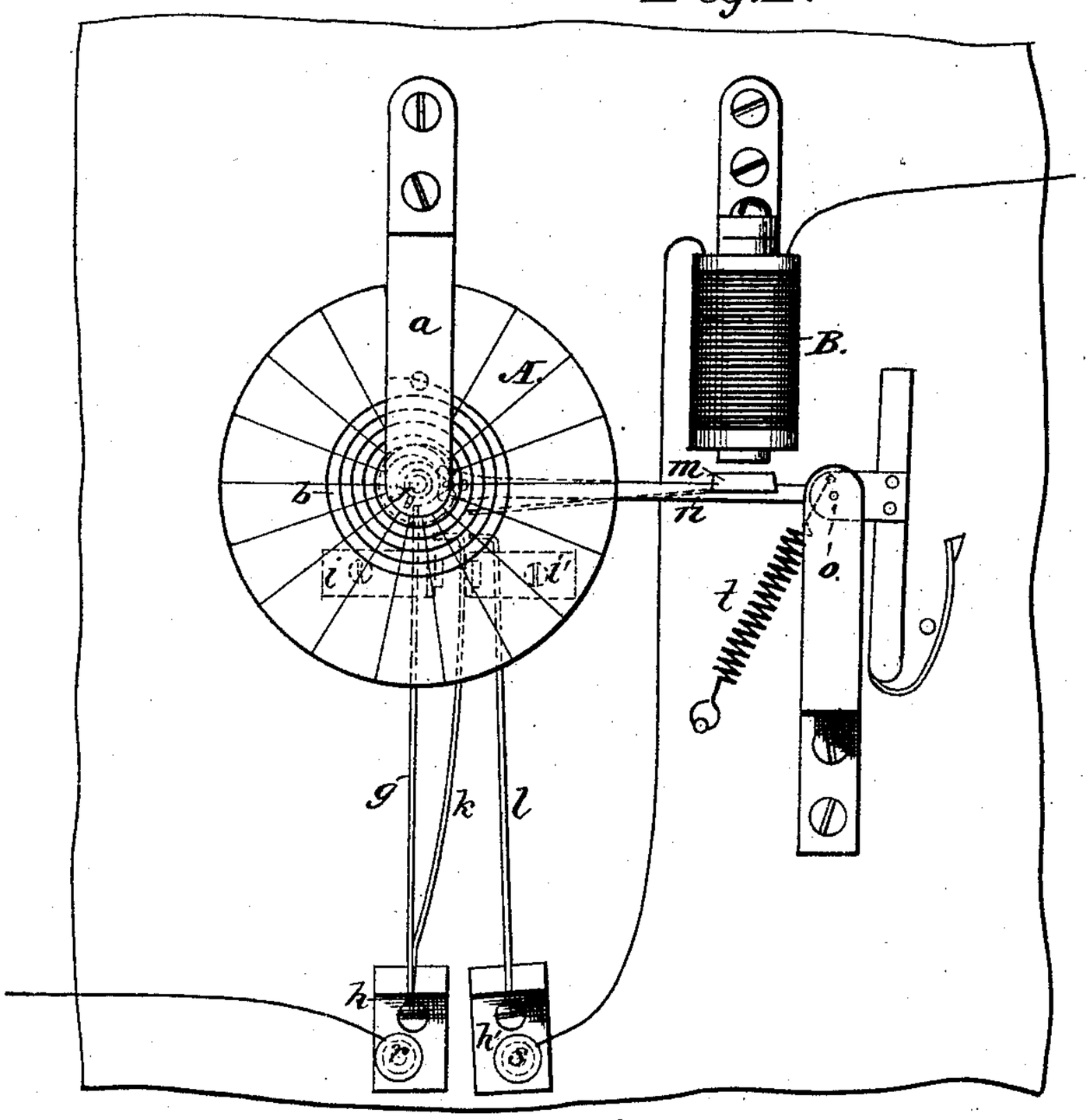
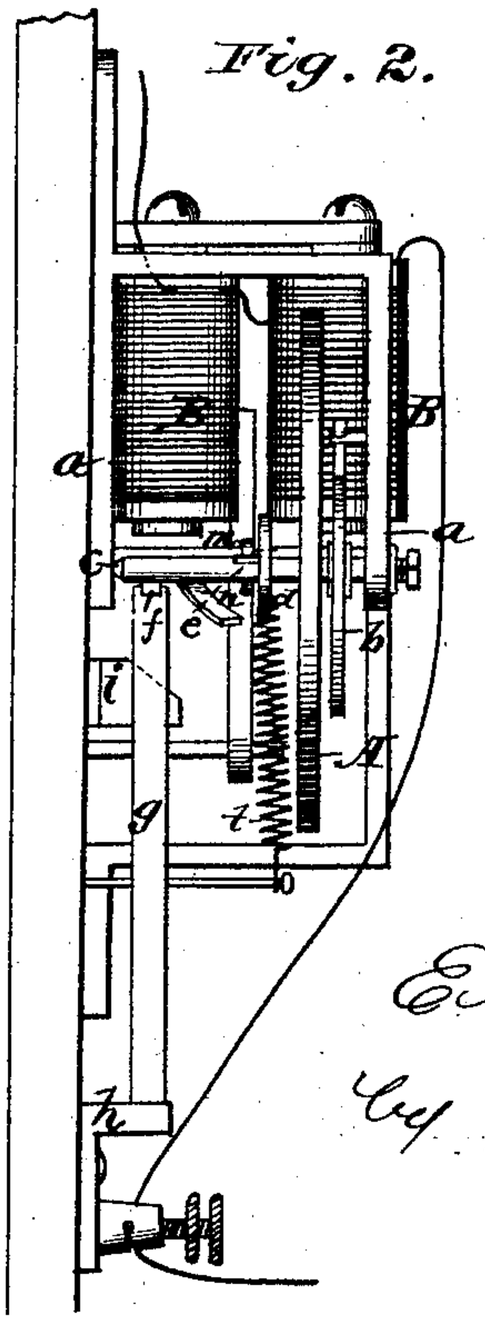


Fig. 2.



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UNITED STATES PATENT OFFICE.

ELIJAH CLARK, OF PARIS, KENTUCKY.

IMPROVEMENT IN ELECTRIC CLOCKS.

Specification forming part of Letters Patent No. **171,098**, dated December 14, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that I, ELIJAH CLARK, of Paris, in the county of Bourbon and State of Kentucky, have invented certain new and useful Improvements in Electric Clocks, whereof the following is a specification.

This invention consists in providing the balance-wheel of a clock with a detent, operating a detent-spring, which controls the circuit-breakers, and through them the clock mechanism, as hereinafter fully specified.

In the drawings illustrating my invention, Figure 1 is a front elevation thereof, and Fig. 2 a side or edge view.

Similar letters of reference indicate like parts in the two figures.

In suitable ordinary bearings *a* is mounted a balance-wheel, A, having the hair-spring *b* and staff *c*. Below the balance-wheel is affixed, on the staff, a table or disk, *d*, in which is inserted, so as to project downwardly from it, a ruby-pin, *e*, and below this disk there extends, radially from the staff, a tongue, *f*, which I denominate the detent. *g* is a flat spring, set in a base-plate, *h*, and hereinafter referred to as the detent-spring. The motion of the free end of this spring is limited by contact with a strip of metal, *i*, bent at right angles, and attached to the clock-case back. *k* is a metal tongue, attached to plate *h*, and bent out of contact with spring *g*. It is of about even length with the spring, and its free end is bent at about right angles toward the spring. A second plate, *h'*, is arranged near plate *h*, and to it is secured a tongue, *l*, similar in construction to tongue *k*. Between the free ends of these tongues, which constitute circuit-breakers, is arranged an insulated L-shaped plate, *i'*, similar in form to plate *i*, this latter being also insulated. The tongue *k* plays between these two plates, and tongue *l* on the opposite side of plate *i'*. B is an ordinary wire-wrapped maguet, suitably affixed to the clock-case. *m* is its armature borne on a lever, *n*, which latter vibrates on a fulcral pivot, *o*. The end of the lever is forked, and embraces the ruby-pin *e*, so as to transmit the motion of the armature to the wheel. *r s* are the screw-posts on plates *h h'*, for receiving the wires, the arrangement whereof is clearly shown in the drawing. *t* is a spring secured to the clock-case or elsewhere by one end, and to the lever *n* by the other.

As the magnet retains a little electricity it keeps the armature close to it as the wheel moves in one direction. Now, the spring *t* is employed for the purpose of retaining the lever in position on the return movement of the wheel, whereby the staff is kept free while making its revolutions.

The wheel A is provided with a paper or other covering, variously marked or colored, as indicated by the radial lines in Fig. 1.

Having thus described the construction of my invention, its operation is as follows: The proper battery-connections having been made, the balance-wheel is turned so as to bring the detent in contact with its spring, which, coacting with the tongues *k l*, establishes the circuit. The armature is thereby attracted to the magnet, which motion is imparted to the lever, and thence through said levers, connection with the disk *d*, to the wheel.

During the motion of the wheel in each direction the circuit is made, and almost instantly broken, and this action being established, it becomes continuous, so that the necessary clock motion is readily obtainable by proper connections.

What I claim is—

1. In the herein-described electric clock, the combination of the detent *f*, balance-wheel A, detent-spring *g*, and tongues *k l*, constructed as shown, and operating in connection with the magnets, for the purpose of making and breaking the circuit, substantially as specified.

2. The armature-lever *m n*, having one end forked, in combination with spring *t*, disk *d*, and pin *e*, constructed and arranged as shown.

3. The combination of the balance-wheel A, detent *f*, detent-spring *g*, tongues *k l*, and spring armature-lever *m n t*, constructed and arranged as shown.

To the above specification of my invention I have signed my name this 19th day of April, A. D. 1875.

ELIJAH CLARK.

Witnesses:
W. M. HINTON,
R. T. HINTON.