

(No Model.)

2 Sheets—Sheet 1.

C. A. HUSSEY.
SECONDARY ELECTRIC CLOCK.

No. 319,259.

Patented June 2, 1885.

Fig. 1.

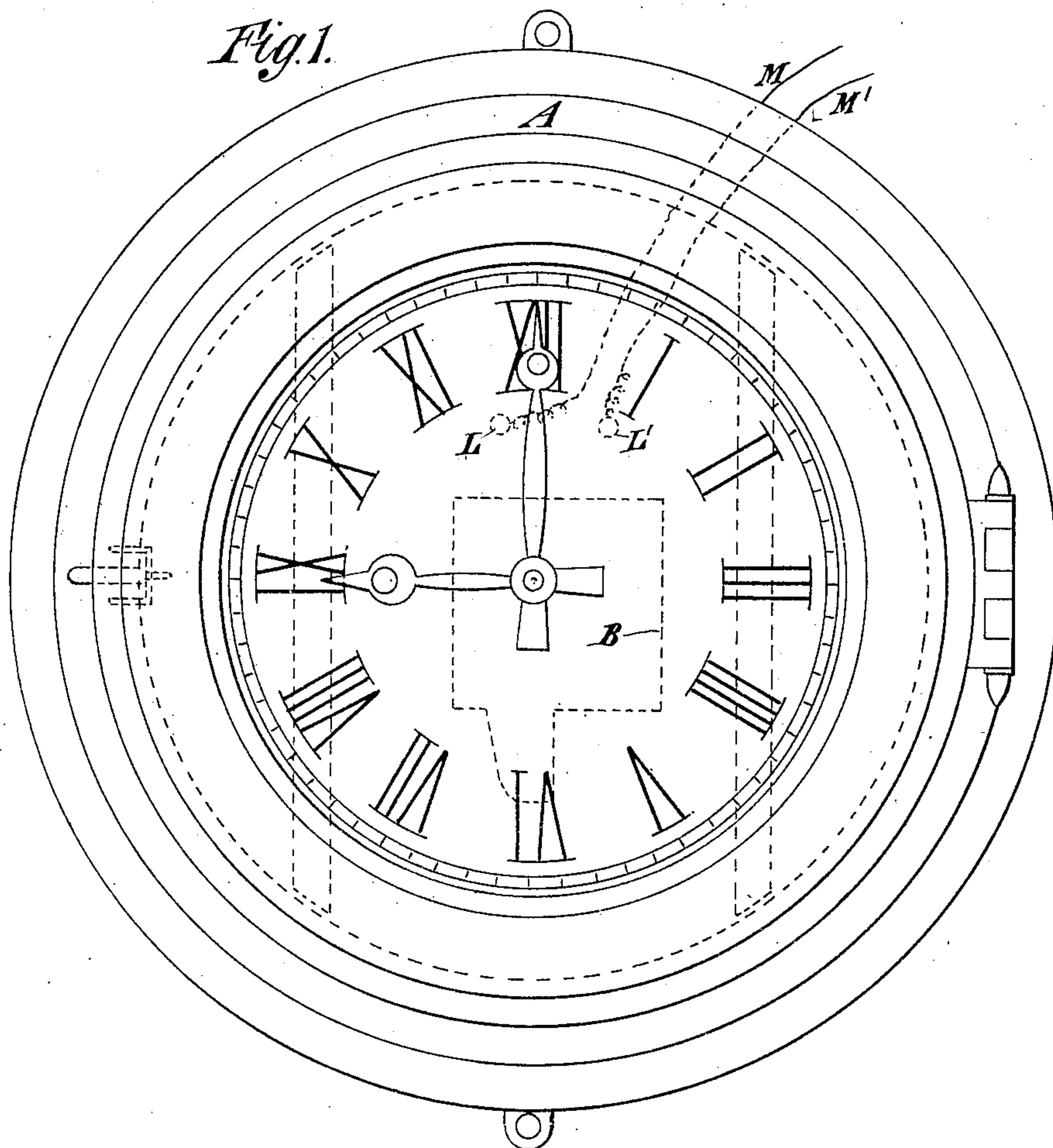
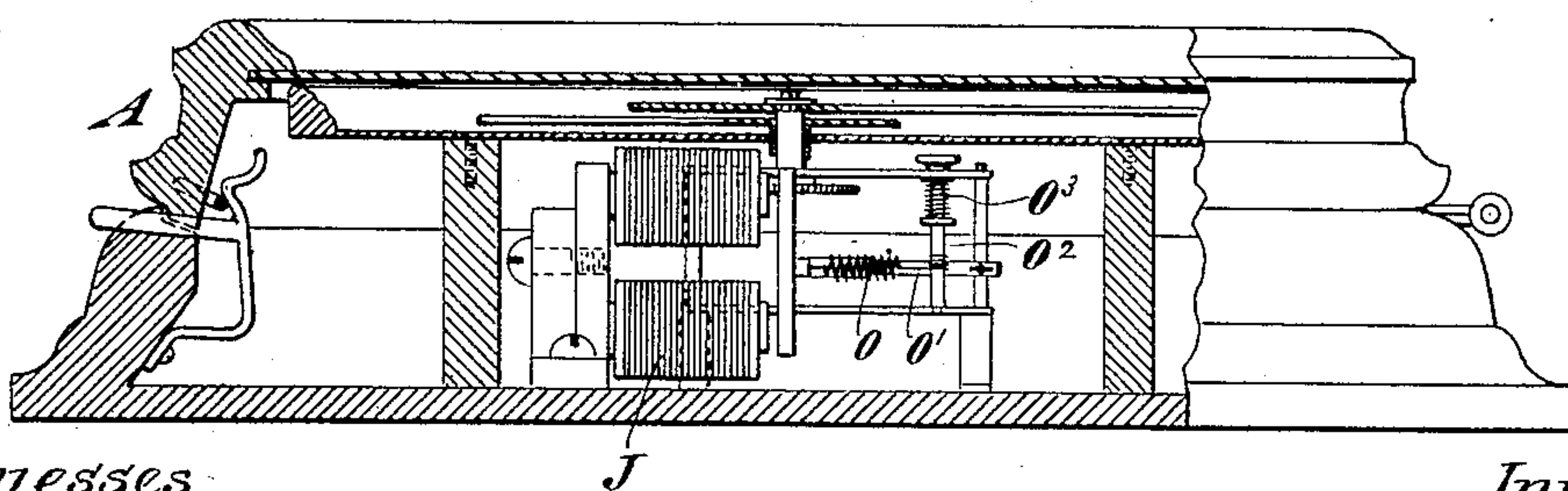


Fig. 2.



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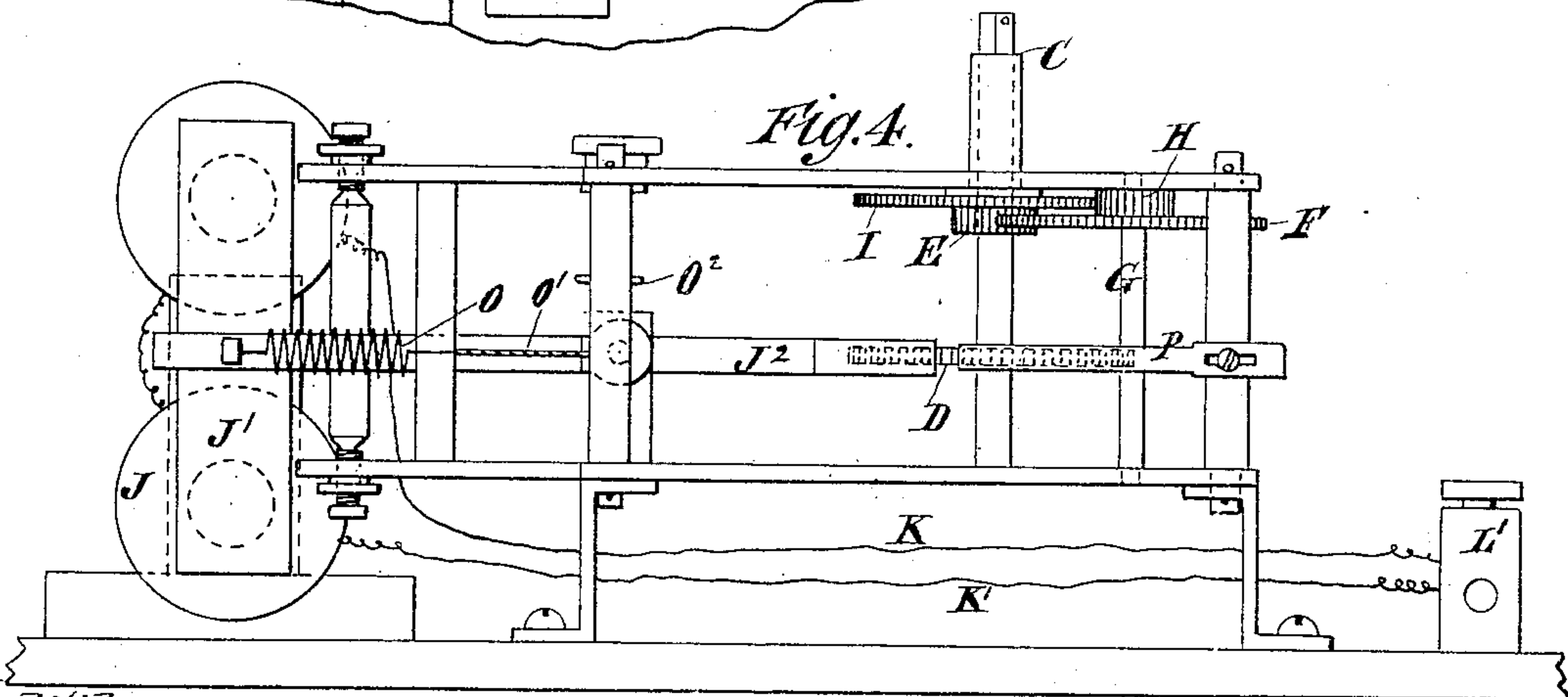
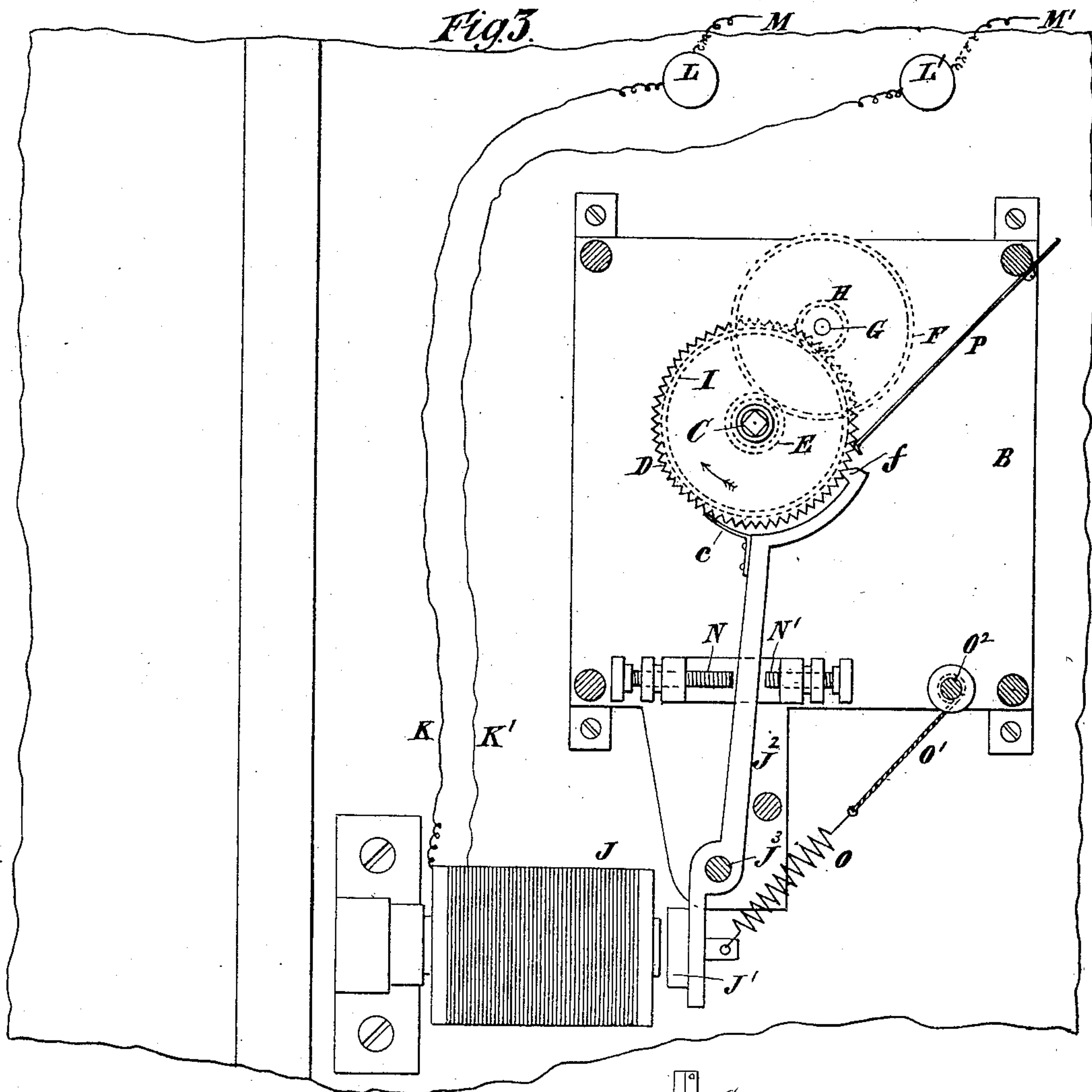
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

CHARLES A. HUSSEY, OF NEW YORK, N. Y.

SECONDARY ELECTRIC CLOCK.

SPECIFICATION forming part of Letters Patent No. 319,259, dated June 2, 1885.

Application filed December 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HUSSEY, of New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electric Clocks, of which the following is a specification.

I will describe a clock embodying my improvement, and then point out the various features in the claims.

In the accompanying drawings, Figure 1 is a front view of a clock embodying my improvement. Fig. 2 is a transverse or horizontal section of the same. Fig. 3 is an enlarged front view of the mechanism of the clock, and Fig. 4 is a side view of this mechanism.

Similar letters of reference designate corresponding parts in all the figures.

A designates the clock-case. It is shown as of circular form, but its shape may be varied at pleasure.

B designates the frame of the clock mechanism. It consists, as here shown, of two metal plates united by cross-bars.

C designates a minute-arbor, supported in the frame B. It has affixed to it a wheel, D, which is intended to have sixty teeth, and to move a distance of one tooth a minute. Its teeth are shown as V-shaped.

Affixed to the wheel D or its arbor C is a toothed pinion, E, which meshes into a toothed gear-wheel, F, arranged upon an arbor, G.

A toothed pinion, H, is connected to the gear-wheel F, or to the arbor thereof, if the latter is a rotary arbor, so as to turn in unison therewith. This pinion H engages with a toothed gear-wheel, I, which is attached to a tubular hour-hand arbor, and with it arranged loosely upon the arbor C, so as to be free to rotate thereon and to allow the arbor C to rotate independently. This combination of wheels may be like the combination of wheels ordinarily used in transmitting motion to the hour-wheel arbor from the minute-wheel arbor.

J designates an electro-magnet connected by wires K K' to binding-posts L L'. To these binding-posts are connected line-circuit wires M M', extending from a regulator-clock in which the circuit is closed periodically. For

the electric clock shown the regulator-clock is intended to close the electric circuit once a minute.

J' designates the armature of the electro-magnet J. It is attached to a lever, J², which is fulcrumed at J³ and capable of vibrating as far as permitted by two adjustable screw-stops, N N'. The electro-magnet J, each time it is energized, vibrates the lever J² in one direction, and a spring, O, vibrates the lever in the reverse direction each time the electro-magnet becomes de-energized.

The spring O is connected at one end to the lever and at the other end to a cord, O', which is attached to and wound upon a windlass or shaft, O². A spring, O³, coiled around the shaft O², bears at one end against a collar affixed to the said shaft, and at the other end against one of the plates of the frame B, and thus produces sufficient friction upon the shaft to cause it to remain in any position to which it may be adjusted.

By using the spring O³, I avoid the nice adjustment of bearings for the shaft O² ordinarily resorted to in order to create a friction-stop for the shaft, as the spring readily adjusts itself to variations in the size of the shaft, and so constitutes at all times an effective stop.

The upper end of the lever J² has attached to it a resilient push-pawl, c, which is curved around a portion of the wheel D, and at the extreme end impinges against one of the teeth thereof. This end of the lever is also provided with an extension curved in the reverse direction to the resilient push-pawl c, and having near the end a tooth, f.

When the lever J² is vibrated by the electro-magnet, the tooth f will be disengaged from the wheel D, and the resilient push-pawl c will be drawn over the ends of the teeth of the wheel in the reverse direction to that in which the wheel is intended to rotate. The rotation of the wheel is at this time prevented by a stop-pawl or detent, P. When the electro-magnet is de-energized, and the lever J² is consequently retracted by the spring, the resilient push-pawl c will force the wheel D forward a distance equal to the width of one of its teeth, and the tooth f will enter a notch between the teeth upon the wheel D and lock

said wheel until the armature is again retracted to engage with the wheels.

It will be seen that by my improvement I provide a very simple and reliable mechanism
5 for an electric clock.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a toothed wheel, of an electro-magnet, a lever actuated there-
10 by having a curved extension extending around a portion of said wheel and provided with a tooth, a resilient push-pawl secured to the lever and extending in a reverse direction to the curved extension around a portion of

the wheel and impinging against one of the 15 teeth on said wheel, and a spring for vibrating said lever in one direction, substantially as specified.

2. The combination, with an electro-magnet, of the lever J², the wheel D, the resilient 20 push-pawl c', secured to said lever, the tooth f on the lever, and the detent P, substantially as specified.

C. A. HUSSEY.

Witnesses:

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