

(No Model.)

2 Sheets—Sheet 1.

H. CAMPICHE.  
ELECTRIC PENDULUM CLOCK.

No. 514,641.

Patented Feb. 13, 1894.

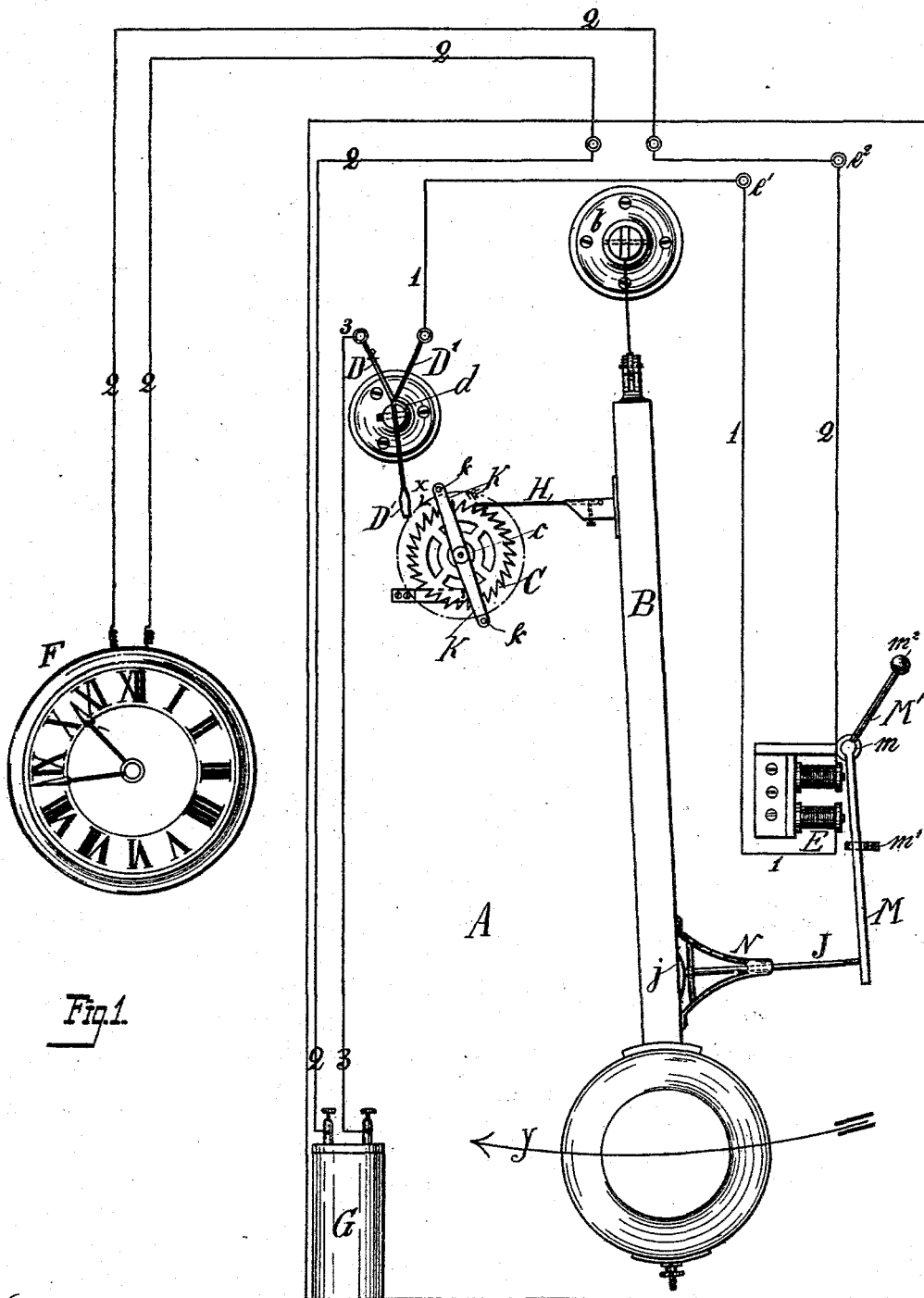


Fig. 1.

Witnesses

Chas. H. Smith  
J. Staib

Inventor

Hemi Campiche  
per Samuel W. Perrell  
Att'y

(No Model.)

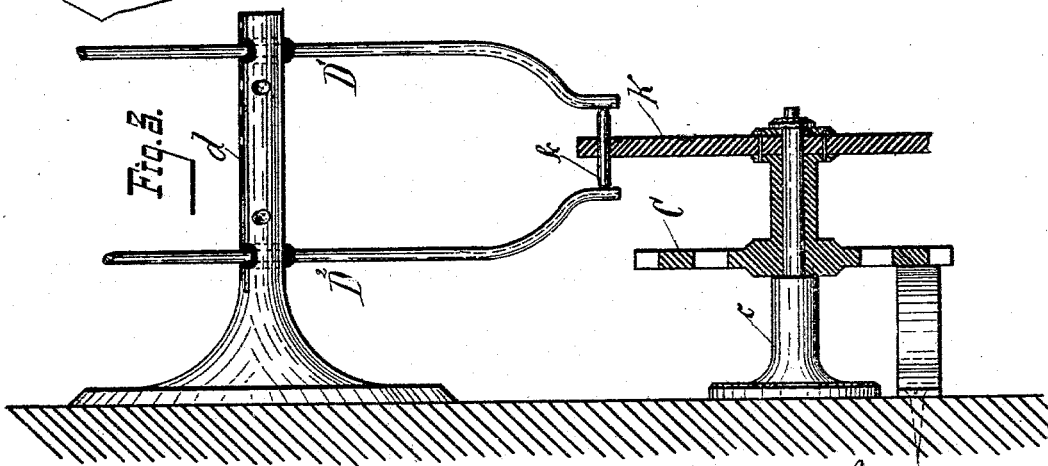
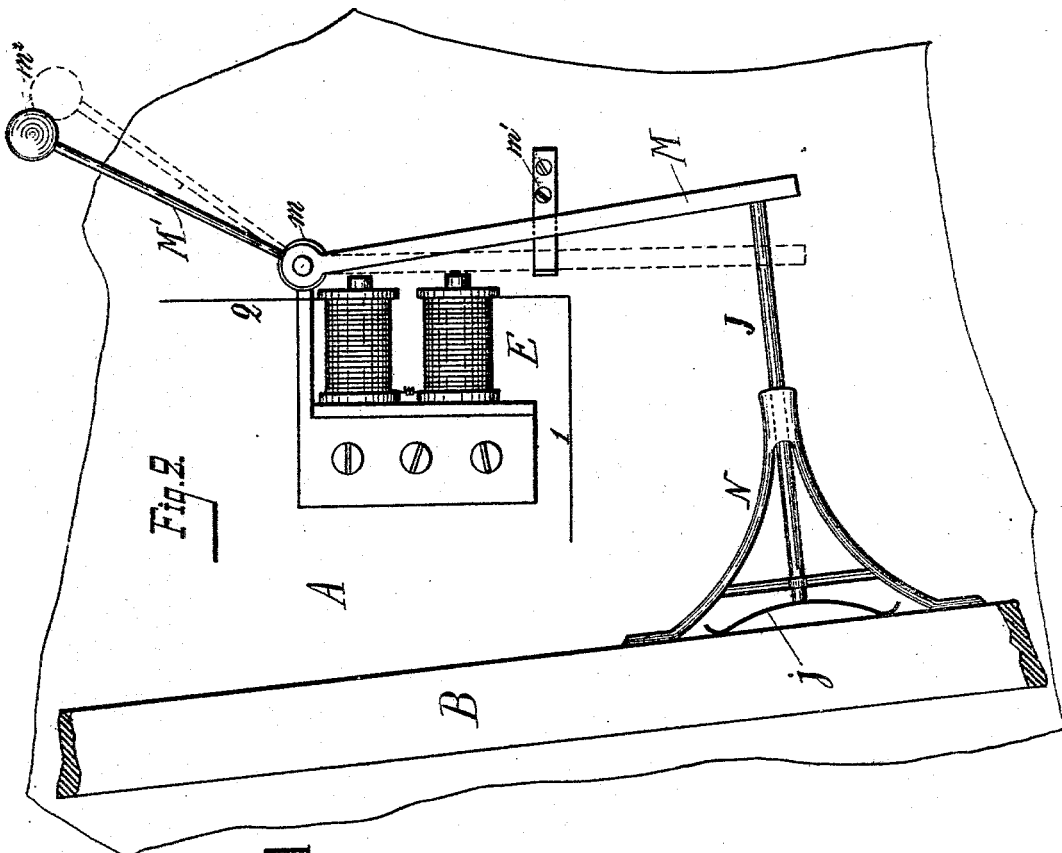
2 Sheets—Sheet 2.

H. CAMPICHE.

ELECTRIC PENDULUM CLOCK.

No. 514,641.

Patented Feb. 13, 1894.



Witnesses

Witnesses  
Chas H. Smith  
J. Staib

Inventor

Henri Campiche  
per Samuel W. Perrell

# UNITED STATES PATENT OFFICE.

HENRI CAMPICHE, OF GENEVA, SWITZERLAND.

## ELECTRIC PENDULUM CLOCK.

SPECIFICATION forming part of Letters Patent No. 514,641, dated February 13, 1894.

Application filed July 28, 1893. Serial No. 481,682. (No model.)

*To all whom it may concern:*

Be it known that I, HENRI CAMPICHE, manufacturer, of Geneva, Switzerland, have invented an Improved Time-Distributing Pendulum, of which the following is a specification.

The object of my invention is to act from a certain central point by means of an extremely simple device upon several electric clocks of the well known system, in which an electric current produces, every minute or fraction of a minute, the jump of the hands by means of an electro-magnet.

In the accompanying drawings, Figure 1 shows a time distributing pendulum of my system upon only one clock. Fig. 2 shows at an enlarged scale the impellent device. Fig. 3 shows the contact device on a larger scale than Fig. 1 and in side elevation, with partial section.

In the three figures the same letters and numerals of reference refer to the same parts.

Upon a board A or any other support the following elements are fixed: The bearing *b* of the pendulum B, the axis *c* of the wheel C, the bearing *d* of the contact fork D' D<sup>2</sup> and the electro-magnet E. The ends of the coils of the latter are connected by means of suitable wires to the binding screws *e'* and *e<sup>2</sup>*. The binding screw *e'* is connected by means of a wire to the arm D' of the contact fork. From the binding screw *e<sup>2</sup>* starts a wire 2 which connects all the clocks F which are to be acted upon by the distributing pendulum with one another and which ends at one of the poles of the battery G (in the drawings only one clock F is shown). The other pole of the battery is connected by means of a wire 3 to the second arm D<sup>2</sup> of the contact fork. The latter is then used as an interrupter of the circuit which when closed connects the battery G both with the electro-magnets of all the clocks F and with the electro-magnet E. The pendulum B will preferably be of a relatively great weight. It bears an arm H intended to work like a spring ratchet upon a click wheel C loosely mounted upon the axis *c*, so as to cause its advancing of one tooth in the direction of the arrow, Fig. 1, at each oscillation of the pendulum. The wheel C bears one or more arms K in insulating ma-

terial, the ends of which carry small metallic pieces *k* to close momentarily the above described circuit by connecting together the two arms D' and D<sup>2</sup> of the contact fork. According to the number of teeth of the wheel C and to the number of contact arms, the circuit will be closed once, twice or several times in a minute, and will produce each time the setting of all the clocks in the circuit and a corresponding advancing of their hands. At the same time the closing of the circuit produces the excitation of the electro-magnet E and consequently the attraction of its armature M, hinged to the bearing of the electro-magnet E at *m*. The pendulum carries a lateral arm having a rod J arranged so as to slide in a support N fixed to the pendulum. One of the ends of the rod J carries a spring *j* which rests against the pendulum and the other end of said rod is intended to meet at the end of each oscillation of the pendulum the armature M of the electro-magnet. The said armature M hinged at *m* as above specified, is usually pressed against a spring stop *m'* fixed to the board A by the action of a counterweight *m<sup>2</sup>* upon an arm M' of the armature M. When the rod J meets the armature at or somewhat before the end of the oscillation of the pendulum, the armature is lifted as shown by full lines in Figs. 1 and 2, from the position shown by dotted lines in Fig. 2 until the pendulum oscillates in opposite direction. If in doing so it causes the contact fork D' D<sup>2</sup> to be closed by the contact piece *k* the electro-magnet E will at the same time be excited and the armature M attracted. This causes an impulse to be given to the pendulum B by the action of said armature M upon the rod J. Now it might happen that the said armature M by coming into contact with the pole pieces of the electro-magnet E would become magnetized and remain in contact with them; therefore I provide the spring-shaped stop *m'* which retracts or holds the armature M in the position shown by dotted lines in Fig. 2 as soon as the electric current exciting the electro-magnet E is cut off. Each time the pendulum temporarily closes the circuit, it produces the jump of the hands of the clocks with which it is combined and at the same time it gives to itself through the electro-

magnet E a mechanical impulse similar to that which is usually given to any balance or pendulum for putting it into action.

The wheel C might be replaced by a rack or toothed segment acted upon in the same way by means of an arm of the pendulum B and lifted one tooth for each oscillation of the said pendulum. This rack would then directly or indirectly close the circuit at the end of its stroke and would come back to its starting point under the action of its own weight or of a spring when lifted to its extreme position.

The wheel C may be combined with suitable gear wheels, hands and dials so as to indicate the time at the central station where the pendulum is placed.

Having described my invention, I claim—

The combination of a pendulum B, and an electric circuit connecting an electric source

G. with an electric clock, with an electro-magnet E, and a device for interrupting the circuit, consisting of the contact fork D', D<sup>2</sup>, and a device which acts temporarily upon the said interrupter of the circuit so as to close the circuit after a certain number of vibrations of the pendulum, the armature of the electro-magnet E, being arranged so as to give a mechanical impulse to the pendulum each time the electric circuit is closed and the jump of the hands of the clocks F. produced, substantially as and for the purposes specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRI CAMPICHE.

Witnesses:

E. IMER SCHNEIDER,

OTTO MAY.