

(No Model.)

4 Sheets—Sheet 1.

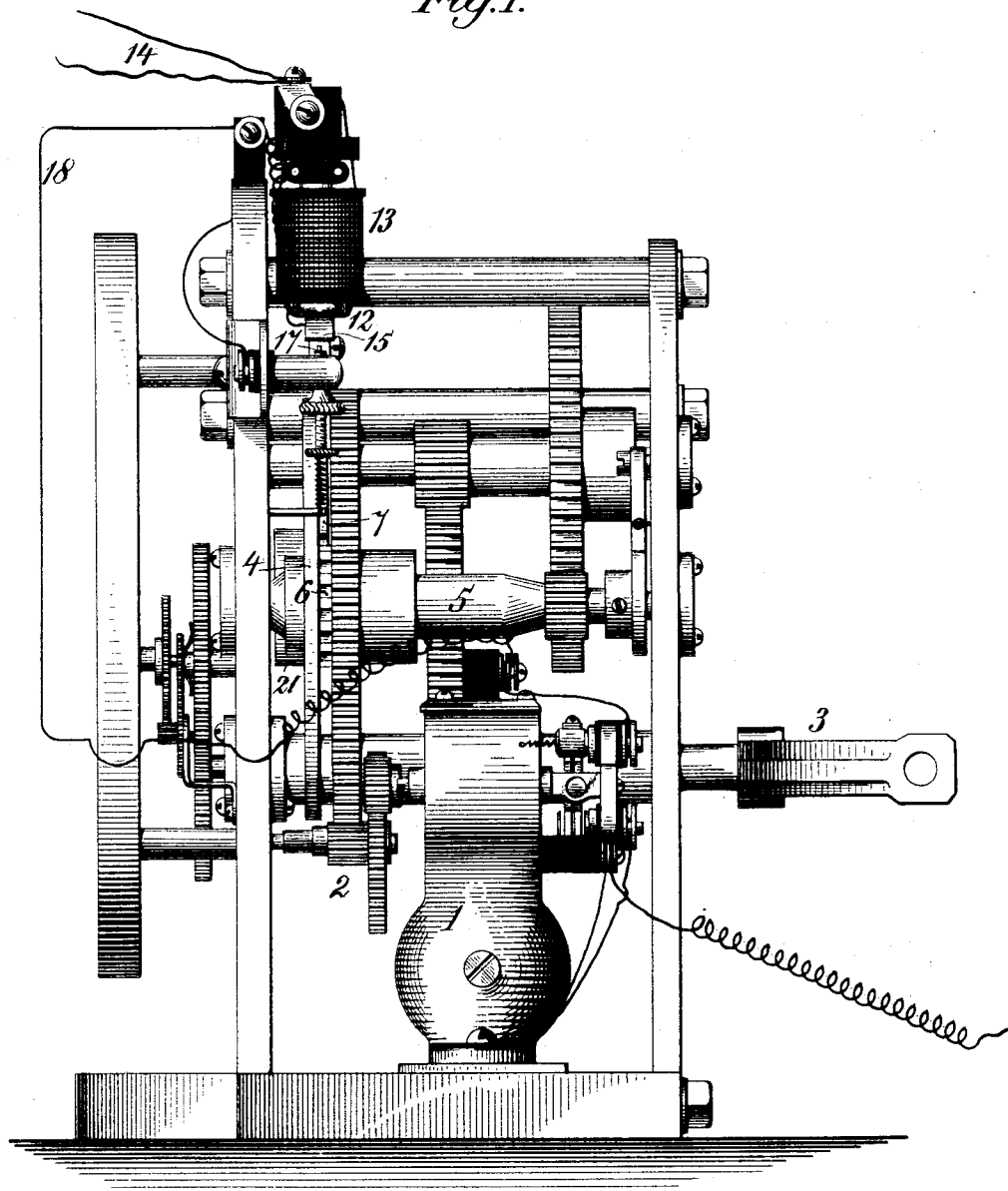
J. H. GERRY & F. M. SCHMIDT.

ELECTRIC TOWER CLOCK.

No. 538,773.

Patented May 7, 1895.

Fig. 1.



Witnesses:-

O. H. Kayser

M. V. Bidgood

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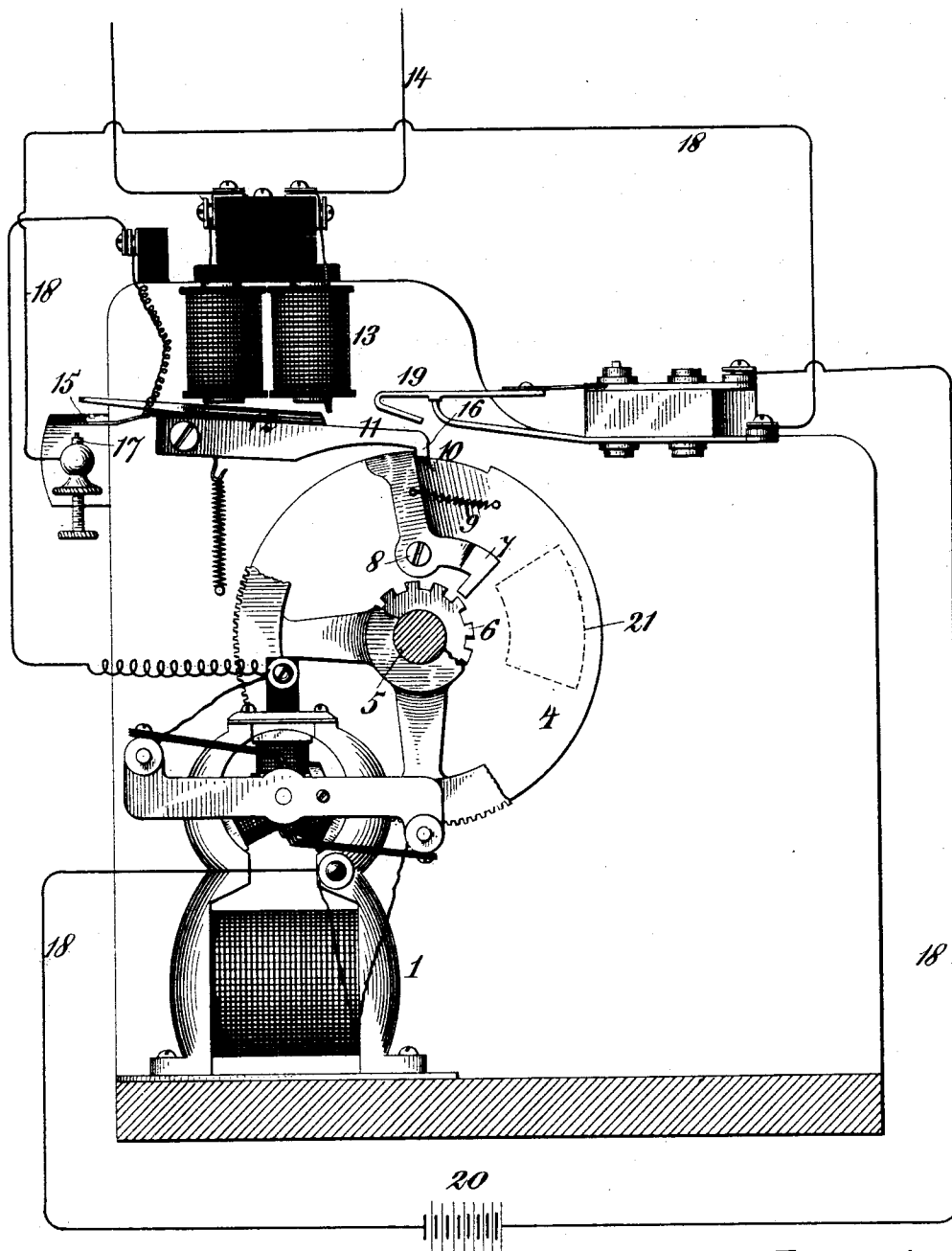
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Fig. II.



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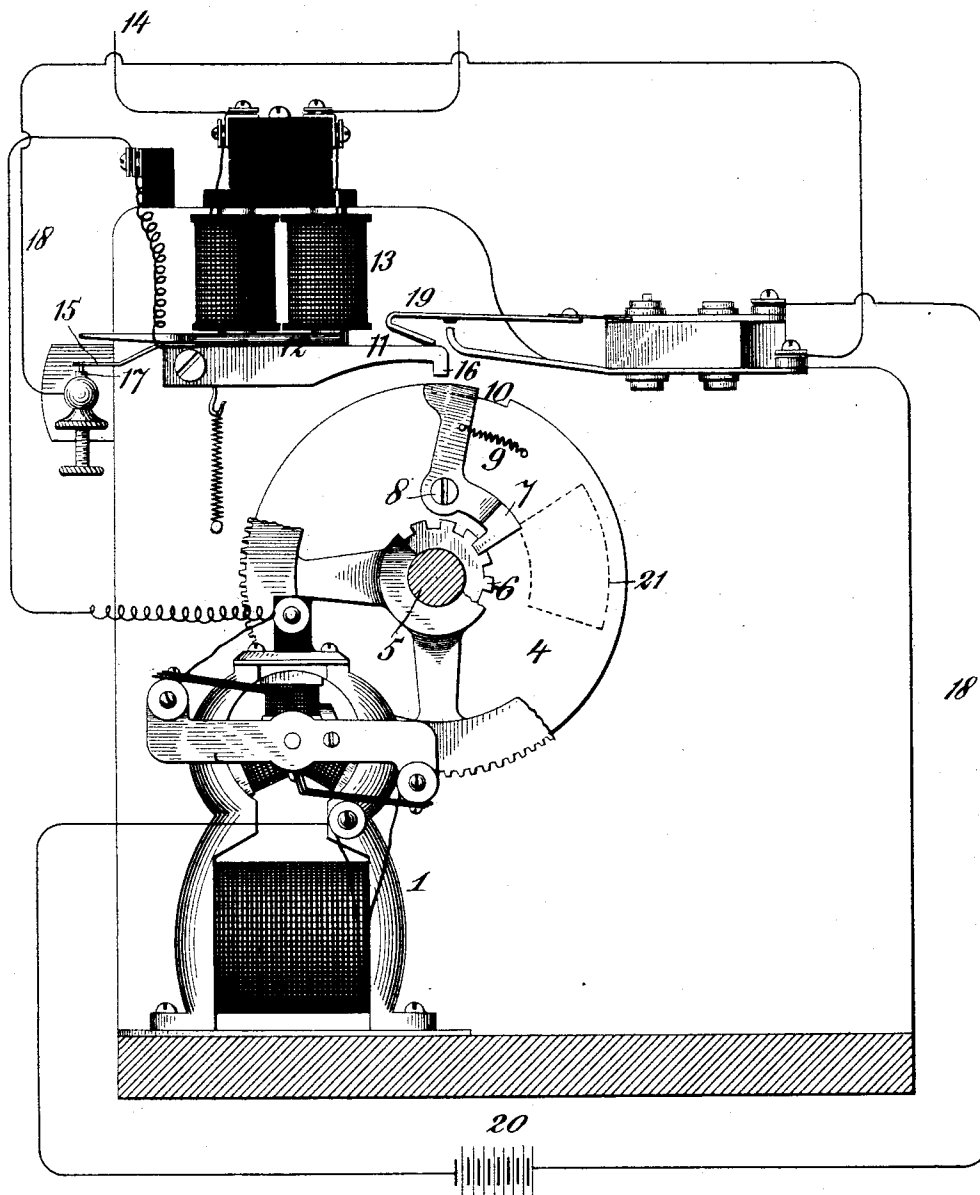
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Fig. III.



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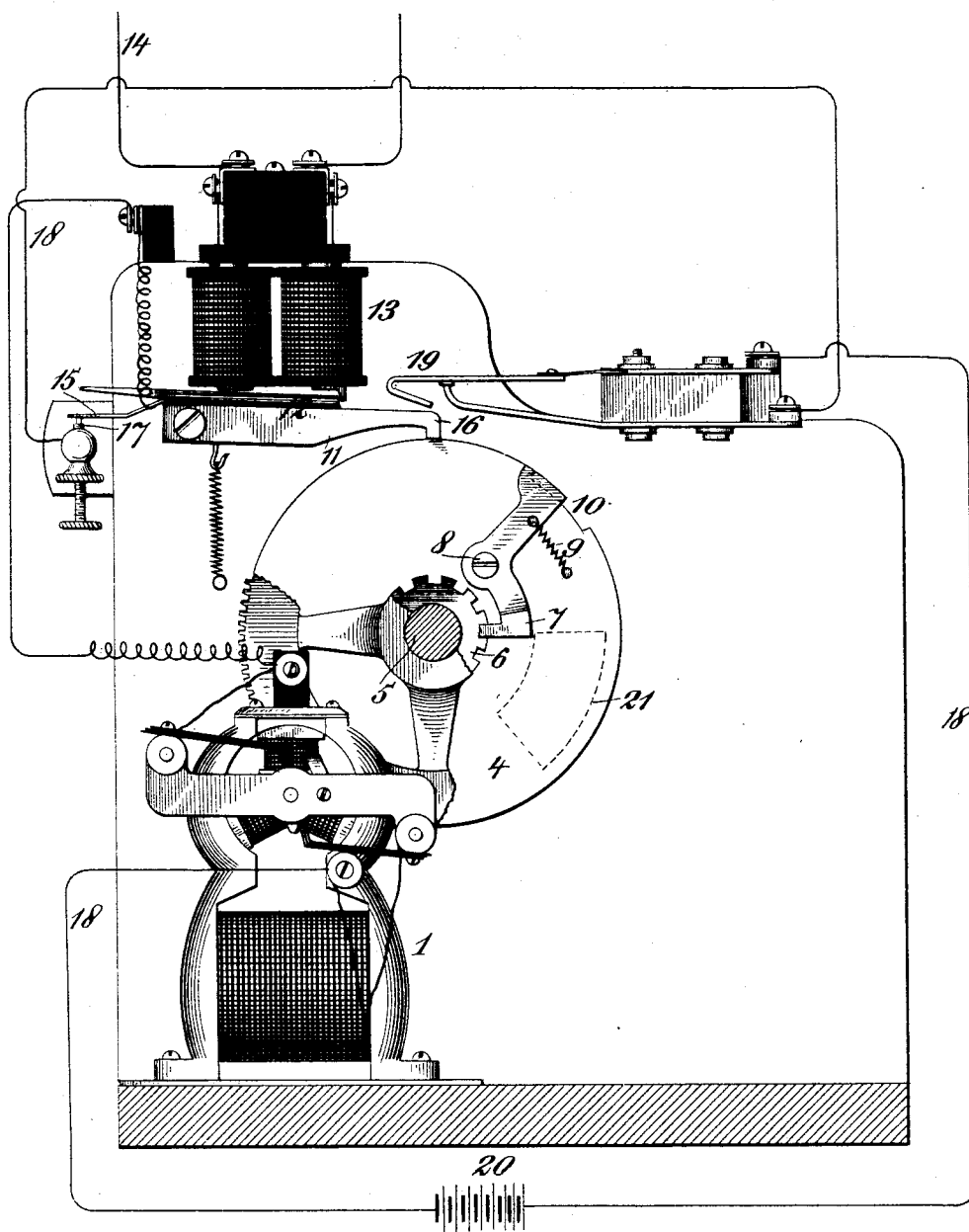
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Fig. IV.



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UNITED STATES PATENT OFFICE.

JAMES H. GERRY AND FREDERICK M. SCHMIDT, OF BROOKLYN, ASSIGNORS
TO THE SELF WINDING CLOCK COMPANY, OF NEW YORK, N. Y.

ELECTRIC TOWER-CLOCK.

SPECIFICATION forming part of Letters Patent No. 538,773, dated May 7, 1895.

Application filed November 15, 1894. Serial No. 523,874. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. GERRY and FREDERICK M. SCHMIDT, citizens of the United States, residing at Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Tower-Clocks, of which the following is a specification.

This invention relates to the class of electric clock which forms the subject of our Letters Patent of the United States No. 513,469, dated January 23, 1894, in which is shown a clock the hands of which are driven from a continuously moving local motor under control of a distant master clock. The invention is principally intended for tower clocks.

The tower clock described in our aforementioned Letters Patent has its hands shifted over the space of one minute each time the motor is set in movement by an impulse from the distant master clock. The motor is apt to gain such momentum as to make it difficult to arrest it precisely at the minute without more or less strain on the stop mechanism and other parts of the clock and our present invention relates to devices which automatically disconnect the motor from the stop mechanism and clock when the hands have moved over the proper space so that if the motor continues to run by momentum, it will no longer affect the clock.

Referring to the accompanying drawings, which form a part of this specification, Figure I is a side elevation of our improved clock. Fig. II is a partial front elevation thereof, showing also the electric circuit in diagram, the parts being shown in the stopped position. Fig. III is a similar view illustrating the initial position on the reception of an electric impulse by the clock. Fig. IV is a similar view illustrating the next position of the parts.

1 is a continuously moving motor; that is to say, a motor which is adapted, when once started, to operate continuously until arrested by some external means. In general, it may be any motor which when started for the purpose of operating the clock hands is capable of acquiring momentum making it desirable to use the automatic releasing devices herein after described. Through a suitable train 2 of gears, which need not be herein more fully

described, the clock hands 2^a (not shown) are operated. We have here shown a coupling 3 adapted to be connected to the mechanism which immediately propels the hands of the tower clock as clearly shown and described in our patent above referred to. At a suitable point in the train, preferably fixed upon the arbor of the minute wheel, we arrange a stop disk 4. Adjacent to said disk and loose on said arbor 5 is a toothed wheel 6 geared to the motor and with which a dog 7 pivoted at 8 to the disk 4 engages when released to the action of a spring 9. The disk 4 is notched at 10 and the radial arm of dog 7 has a lip extending to the periphery of the disk adjacent to said notch so as to be acted upon by the toe 16 of a spring stop 11 which bears the armature 12 of electro-magnet 13 in the circuit 14 of the master clock. The armature 12 carries a spring contact 15 at the end opposite to its toe 16 and makes thereby connection with the adjustable contact 17 in a local circuit 18 which includes a second contact 19 (controlled by the armature lever 11), a local battery 20 and the coils of motor 1. The disk 4 has at 21 a weight serving to overbalance the disk.

The position of rest of the clock is shown at Fig. II, the toe of armature lever 11 in engagement with the notch 10 of disk 4 and so holding the clock hands and also in engagement with the lip of dog 7 so disengaging the disk 4 from the motor and clock train. When now an electric impulse comes on the main line 14 from the master clock the parts assume the position shown in Fig. III; that is to say, the armature lever is raised making contact in the local circuit at 15, 17 and breaking it at 19 so that the motor is not electrically operated, but the dog 7 being released by the armature lever 11 falls against the toothed wheel 6 and the rotation of the disk 4 is started by the weight 21 so that the dog engages the teeth of said disk as shown in Fig. III. This movement of the disk has carried the notch 10 therein away from the toe 16 of lever 11 so that when the impulse on the main line 14 ceases and the lever 11 is allowed to drop as shown in Fig. IV, the parts are in the position shown in that figure; that is to say, the local circuit is closed at 19 by the fall-

ing of the armature lever away from the contact at this point, but the lever is sufficiently supported by the disk 4 to maintain the spring contact at 15. The local circuit through the battery and motor is therefore completed and the motor started in operation starting the clock train and the disk 4 and moving the clock hands forward until the notch of disk 4 again comes under the toe of lever 11 when said lever drops, breaking the local circuit so that the motor will continue to go only by momentum, but the disk 4 is automatically stopped and at the same time released from the motor train when the toe of lever 11 striking the dog 7 carries the dog with it until the toe strikes the end of the notch of disk 4. The parts will now again be in the position shown in Fig. II and the hands will have moved through the space of one minute.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. In an electric clock system, the combination of an electric motor and train for driving the clock hands, means controlled by a distant master clock for operating said motor at pre-determined intervals, means for arresting the movement of the clock hands and simultaneously disconnecting them from the motor and breaking communication between the motor and its operating means, whereby the shock of arresting the momentum of the motor is avoided.

2. In an electric clock, the combination of the notched and weighted controlling disk having means for connecting it to the clock train, an armature lever controlling said disk and a local electric clock circuit including a normally open and a normally closed pair of contacts controlled by said armature lever, substantially as set forth.

3. In an electric clock system, the combination of the clock train, a notched controlling disk, a dog carried thereby adapted to engage a part on the clock train connected to the hands, a controlling armature for said disk and dog, a local electric circuit including a motor for driving said train, a source of electricity and contacts controlled by said armature lever and a line circuit including an electro-magnet for governing said armature lever, substantially as set forth.

4. The combination of the local clock circuit including the electric motor 1, a source of electricity 20, the armature lever 11 and the two contacts 19 and 15 to 17, the clock train operated by said motor, the regulating disk having notch 10 and dog 7 and the main line 14 having controlling magnet 13, all arranged and adapted to operate substantially as set forth.

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