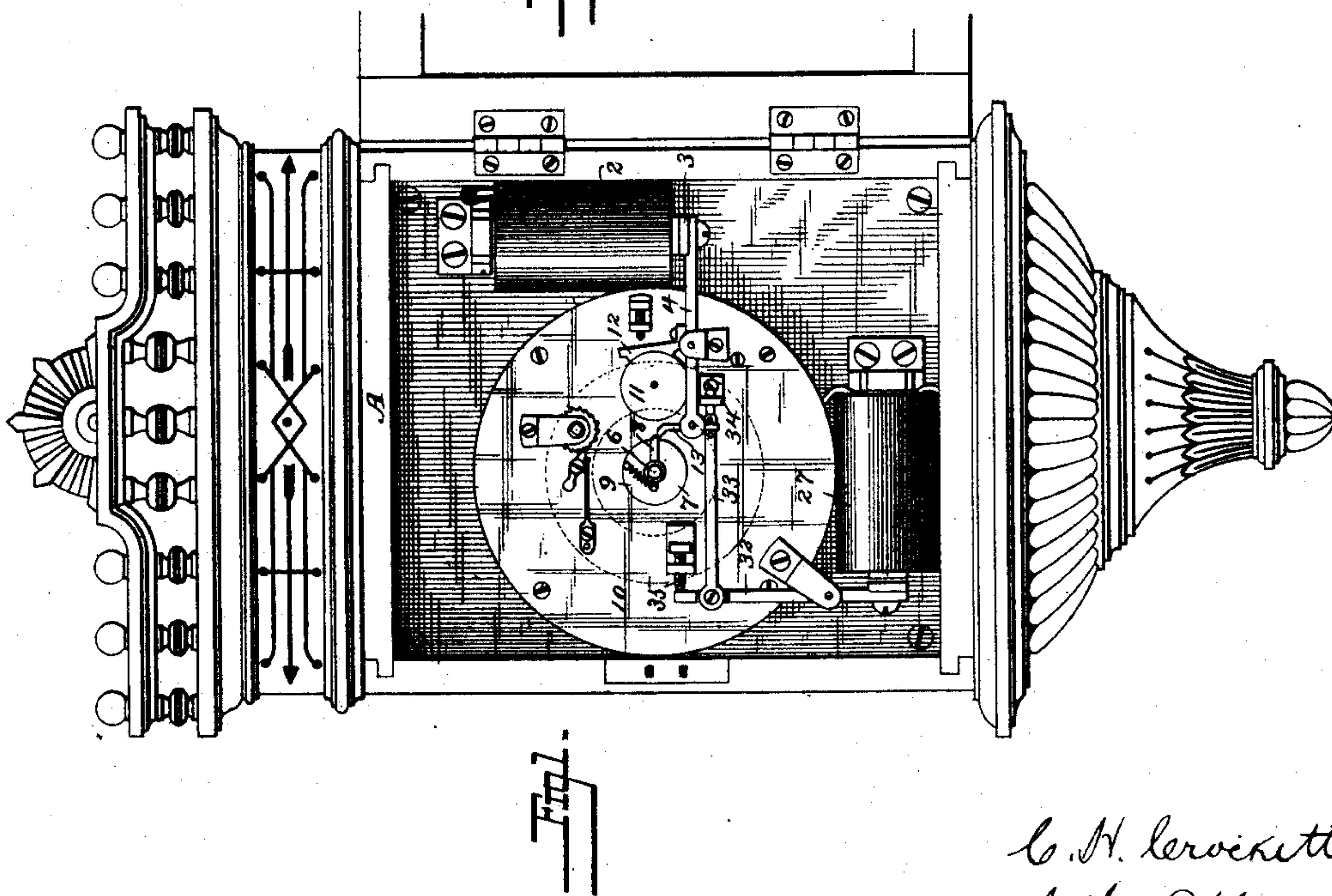
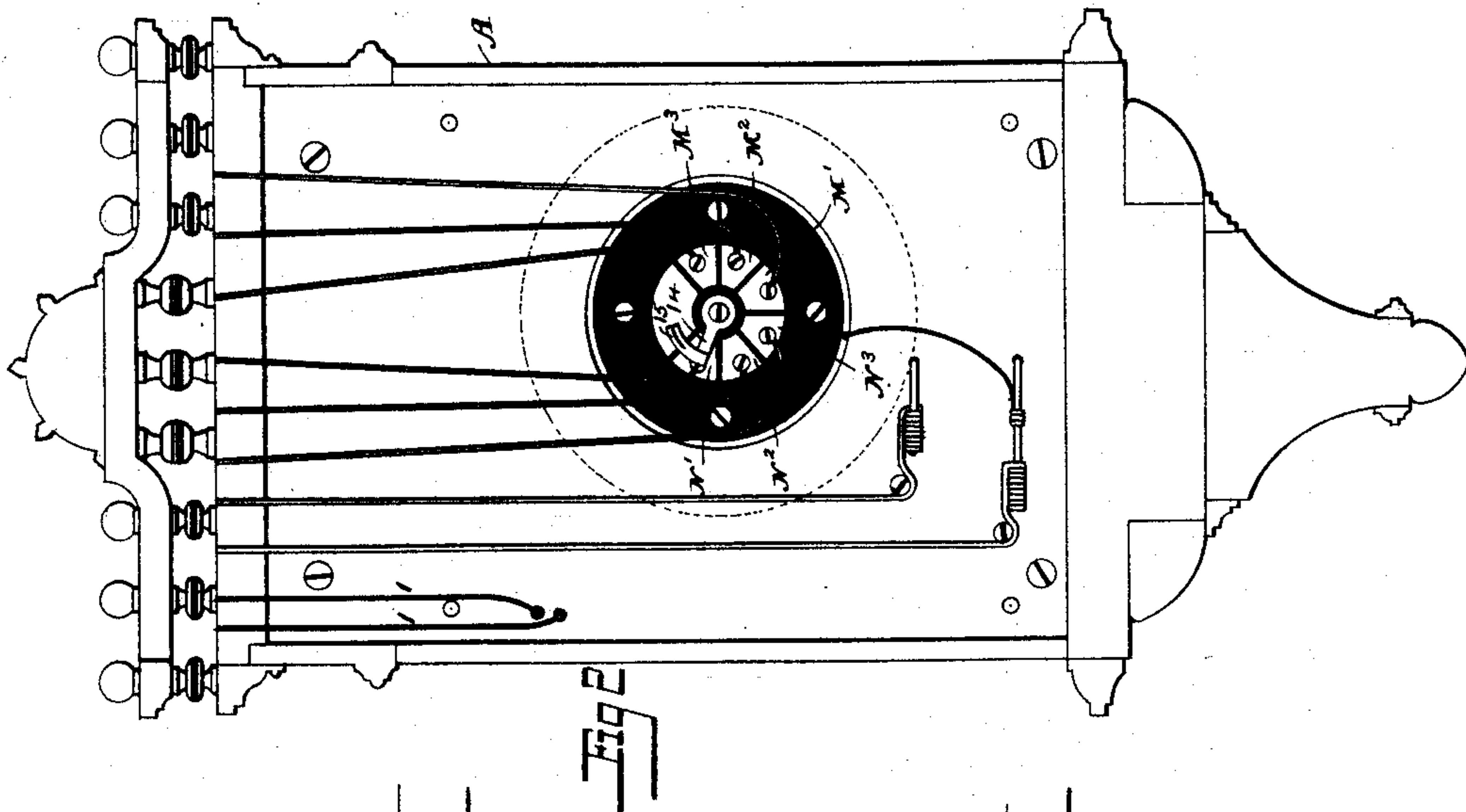


(No Model.)

2 Sheets—Sheet 1.

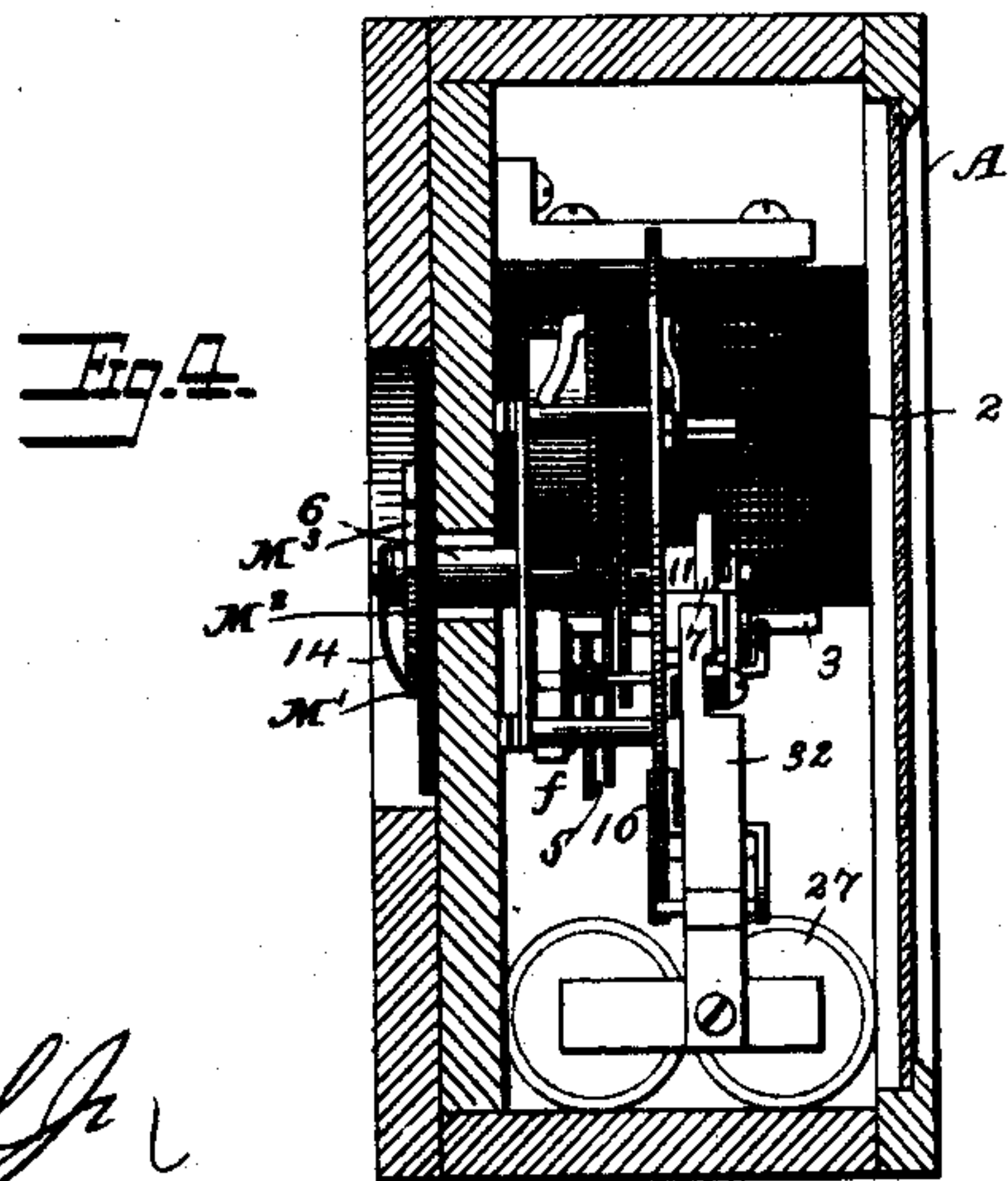
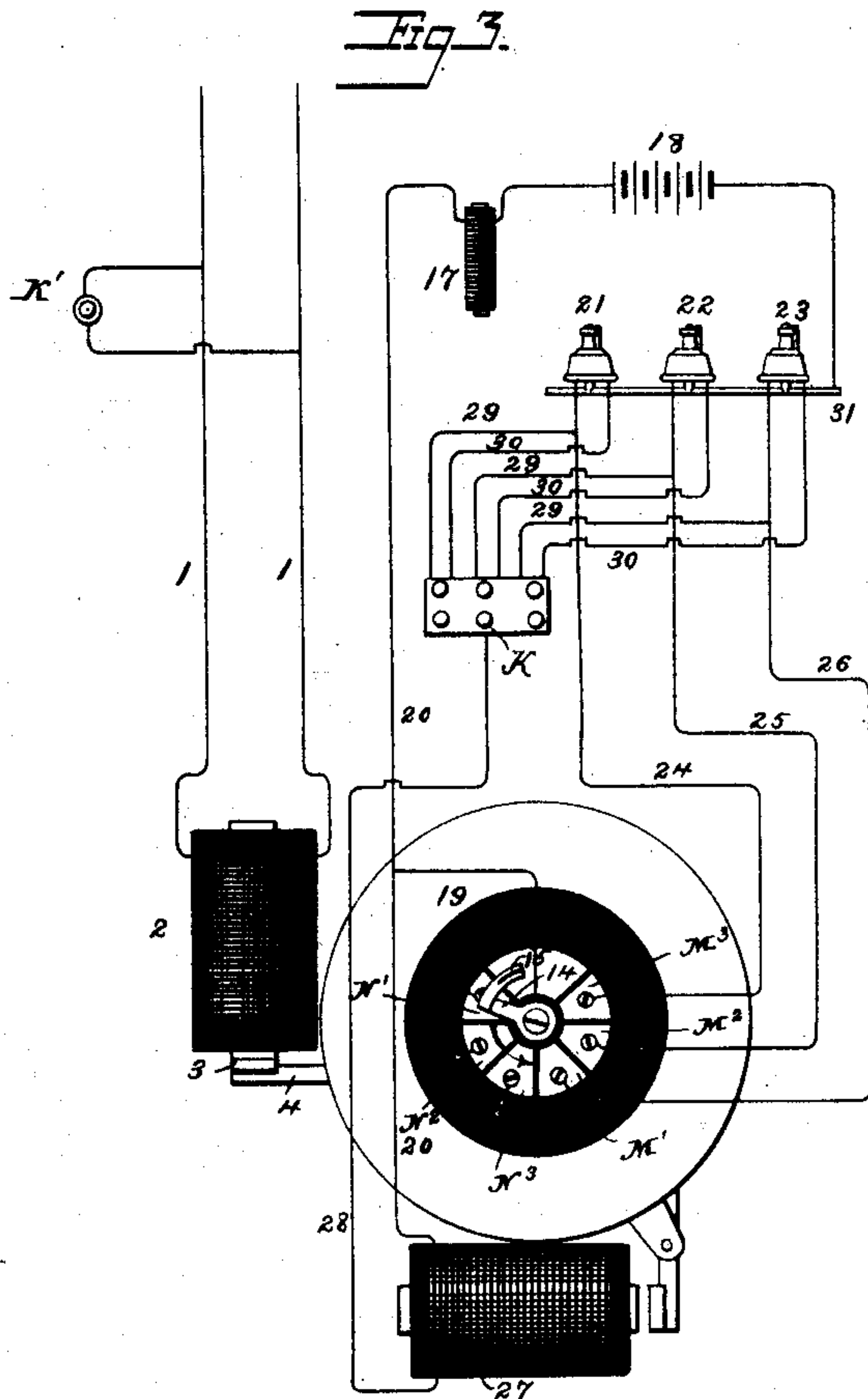
C. H. CROCKETT & C. C. ALLEN.
COMBINED FIRE ALARM TELEGRAPH AND GAS LIGHTING DEVICE.
No. 430,175. Patented June 17, 1890.



Attest:
John G. Shickel
A. C. S. Lammann.

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UNITED STATES PATENT OFFICE.

CHARLES H. CROCKETT AND CHANCELLOR C. ALLEN, OF BOSTON,
MASSACHUSETTS.

COMBINED FIRE-ALARM TELEGRAPH AND GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 430,175, dated June 17, 1890.

Application filed September 3, 1887. Serial No. 248,727. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. CROCKETT and CHANCELLOR C. ALLEN, citizens of the United States, and residents of Boston, Suffolk county, Massachusetts, have invented certain new and useful Improvements in Combined Fire-Alarm Telegraph and Gas-Lighting Devices, of which the following is a specification.

Our invention relates to automatic gas-lighting devices, and more particularly to that class of lighting devices that are connected to and operated by and in connection with fire-alarm telegraphs; and it has for its object to produce a simple, cheap, and effective device whereby when an alarm of fire is sent in over the lines of any ordinary fire-alarm telegraph the gas will be automatically turned on and lighted, and, while it is especially adapted for use in fire-alarm stations, engine-houses, and the like, it may also be used in many and various other connections.

To these ends our invention consists in the various constructions and arrangements of devices, as more particularly pointed out hereinafter.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a front view of one arrangement of our invention inclosed in a box or case, the door being shown opened. Fig. 2 is a rear view of the same. Fig. 3 is a diagrammatic view showing one arrangement of circuits and connections; and Fig. 4 is a transverse section of the case shown in Fig. 1, showing the arrangement of the operating mechanism.

The wires 1 1 and magnet 2 form a part of the circuit of any ordinary fire-alarm telegraph, and the magnet is shown as being secured to the inside of the case A. As the fire-alarm telegraph most commonly used works upon what is termed a "closed circuit," we have shown our invention in connection with such a circuit, though it is apparent to those skilled in the art that it may be used with an open - circuit telegraph without material change. In this instance the armature 3 upon the armature-lever 4 is normally held in its position by the continued attraction of the magnet 2. Suitably mounted in the case is a

motor of some kind, (shown in the drawings as a clock-work 5,) upon the projecting front end of the main shaft 6 of which is secured a disk 7, and loosely mounted upon the shaft in front of the disk is a lever or arm 8, one end of which is connected to the disk 7 near its periphery by a coiled spring 9. Also connected with the clock mechanism and secured upon a shaft extending in front of the plate 10 of the mechanism is a friction-wheel 11, for controlling the movement of the same, as hereinafter explained. The armature-lever 4 carries a brake-shoe 12, adapted to bear upon the friction-wheel 11 when the armature is raised, as shown in Fig. 1, and upon or near the extremity of said lever is pivoted an arm or stop-piece 13, which is adapted to lie in the path of rotation of the arm 8.

Upon the opposite end of the main shaft 6 of the clock-work is carried an arm 14, having a flexible spring or brush 15, adapted to pass over and make successive contact at each revolution with each of the plates N' N^2 N^3 and M' M^2 M^3 , suitably mounted on the rear of the case and insulated from it and each other. This arm or brush is connected to the spark-coil 17 and one pole of the battery 18 by the wires 19 20. These segments or plates are respectively connected with the lighting-magnets of the automatic gas-lighting devices 21 22 23 by means of the wires 24 25 26, and there may be as many segments and burners as desired.

In order that there may be no possible failure in lighting the burners, we prefer to connect each burner to two separate segments, so as to insure the closing of the circuit through each gas-lighting device twice at a single revolution of the contact arm or brush, and we have shown the segments N' and M' , N^2 and M^2 , and N^3 and M^3 as connected together, respectively, in each gas-burner circuit.

Various forms of automatic gas-lighting devices may be used at the burners; but we prefer to use that shown in Patent No. 281,345, granted to C. H. Crockett July 17, 1883, the operation and construction of which are well known and need not be specifically set forth here. Suffice it to say that closing one circuit

through the burner automatically opens the gas-cock and ignites the flame, and closing another circuit automatically closes the gas-cock and extinguishes the flame.

5 Suitably located for convenience of operation we place a set of keys K in the circuit of the gas-burners, and these are so arranged that any one or all of the burners may be independently lighted by pressing the upper
10 button of each key, and the lower buttons are similarly arranged to extinguish the flame. Pressing any one of the buttons of key K also closes a circuit through the magnet 27, and the circuit may be traced from the battery
15 18, through spark-coil 17, wire 20, to the magnet 27, wire 28, to the key K, where it is suitably arranged to form one electrode of each of the push-buttons of the key, then through the other electrode of one of the buttons to
20 one of the wires 29 or 30, to one of the operating-magnets of the gas-lighter, and thence to ground by the gas-pipe 31 to battery.

Operated by the magnet 27 is an armature-lever 32, having connected therewith a rod
25 33, the end of which works in a bearing 34, and this rod is connected to the lower end of the arm or stop-piece 13 and moves it, as hereinafter explained, the screw 35 serving to regulate the motion of the armature.

30 The operation of the device is as follows: When the signal is rung in over the fire-alarm telegraph-line, the circuit through the magnet 2 is broken and the armature 4 falls, releasing the brake-shoe 12 from the brake or friction wheel 11, allowing the clock-work to rotate the arm 14, and causing the brush 15 to pass successively over all the segments, completing the local circuits one or more times
35 through the lighting-magnets of all the burners during a single revolution of the brush. The armature-lever 4 is so constructed or arranged that when once released by the magnet 2 the closing of the circuit again through
40 said magnet will not affect the armature, and thus the clock-work is permitted to run long enough to cause the brush to make one complete revolution. The arm or stop-piece 13 on the end of lever 4 is, however, arranged to normally lie in the path of the arm 8, carried
50 on the main shaft of the motor, and as the shaft nears the end of one complete rotation the end of said arm 8 impinges upon the end of stop-piece 13, and by means of the spring 9 the momentum of the motor is gradually
55 taken up until it is brought to rest, and at the same time the armature-lever 4 is raised, bringing the armature 3 within the influence of the magnet 2, and the brake-shoe 12 is brought into effective contact with the friction-wheel 11. The armature is now set ready
60 to be released again; but the pressure from the motor is still bearing upon the stop-piece 13, through the disk 7, spring 9, and arm 8, and in order to relieve this the contact between the stop-piece and arm should be broken. After the gas has been lighted it is left to burn until it is desired to extinguish

part or all of it, and this is done by pressing upon one or more of the lower buttons of the key K, which not only extinguishes the
70 flame, but completes the circuit through the magnet 27, causing it to attract the armature-lever 32, and by means of the rod 33 trip the stop-piece 13, so that the spring 9 will cause the end of lever 8 to pass by the end of the
75 said stop-piece 13. The trip or stop piece is thus released from the motor, and the latter is held stationary by the brake-shoe 12, bearing upon the friction-wheel 11 as long as the circuit is closed through magnet 2, and the
80 parts are in position to perform their several functions again.

It will be seen that any one or all of the burners may be lighted independently of the fire-alarm device by pressing the upper but-
85 tons of key K, and when it is desired to light all the burners in the quickest time independent of the fire-telegraph, as when an alarm comes in through some other agency than the fire-alarm telegraph, we provide a key K', so
90 arranged as to form a shunt or short circuit around the magnet 2, which thereby loses its power, and the armature-lever 4 falls, releasing the clock-work, and all the burners are lighted, as before described. It will thus
95 be seen that while the device is always ready to operate to automatically light all the burners immediately upon the first stroke of the fire-alarm, and that the mechanism will operate to make one complete revolution of the
100 brush independent of the condition of the alarm-circuit after being once broken, it will also automatically reset itself ready for the next alarm as soon as any one of the burners is extinguished. Moreover, when the mechanism is once set the burners may be lighted and extinguished at pleasure without affecting the automatic devices.

While we have shown our invention as embodied in one specific form, it is evident that
110 it may be variously constructed and arranged to adapt it to different conditions without departing from the principles thereof, and we do not therefore limit ourselves to the precise construction and arrangement shown. 115

What we claim as our invention is—

1. The combination, with the magnet in a fire-alarm circuit, of a motor having a friction-wheel, an armature for the magnet swinging beyond the influence of the magnet, a
120 brake-shoe carried by the armature and operating upon the friction-wheel, and mechanism for bringing the armature within the influence of its magnet, substantially as described.

2. The combination, with the motor, of a
125 disk carried thereby, a pivoted lever connected to the disk by a spring, and a stop-piece normally in the path of the lever, the momentum of the motor being gradually taken up by said spring, substantially as described. 130

3. The combination, with the motor, of a friction-wheel, a disk, a pivoted lever connected to the disk by a spring, and a lever carrying a brake-shoe and a stop-piece adapted

to engage said wheel and lever, respectively, whereby the momentum of the motor may be gradually overcome and the motor held at rest, substantially as described.

5 4. The combination, with the motor, of a lever for gradually overcoming its momentum, a friction device for holding the motor, and a mechanical tripping device engaging with the lever, substantially as described.

10 5. The combination, with a motor of a fire-alarm system, of a series of pairs of segments, each pair being connected to an automatic gas-lighting device, and a contact-maker operated by the motor to successively engage
15 with each pair of segments and operate the gas-lighting devices, substantially as described.

20 6. The combination, with the motor of a fire-alarm system, of a series of gas-lighting devices, a series of contact-pieces connected therewith, automatic mechanism for successively operating said devices to light the burners, and manual circuit-breakers for simul-

taneously extinguishing the burners and resetting the motor, substantially as described. 25

7. The combination, with the motor of a fire-alarm system, of a series of gas-lighting devices, automatic mechanism for successively lighting the gas, and independent manual devices for simultaneously operating the motor
30 and lighting or extinguishing the gas, substantially as described.

8. The combination, with a motor, of a frictional stopping and releasing device controlled by a magnet in one circuit and a mechanical
35 resetting device controlled by a magnet in another circuit.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES H. CROCKETT.
CHANCELLOR C. ALLEN.

Witnesses:

SIMON W. HATHEWAY,
CHARLES E. LOWD.