3 Sheets--Sheet 1.

J. H. GUEST.

District and Fire-Alarm Telegraphs.

No. 144,535. Patented Nov. 11, 1873.

FIG. 1.

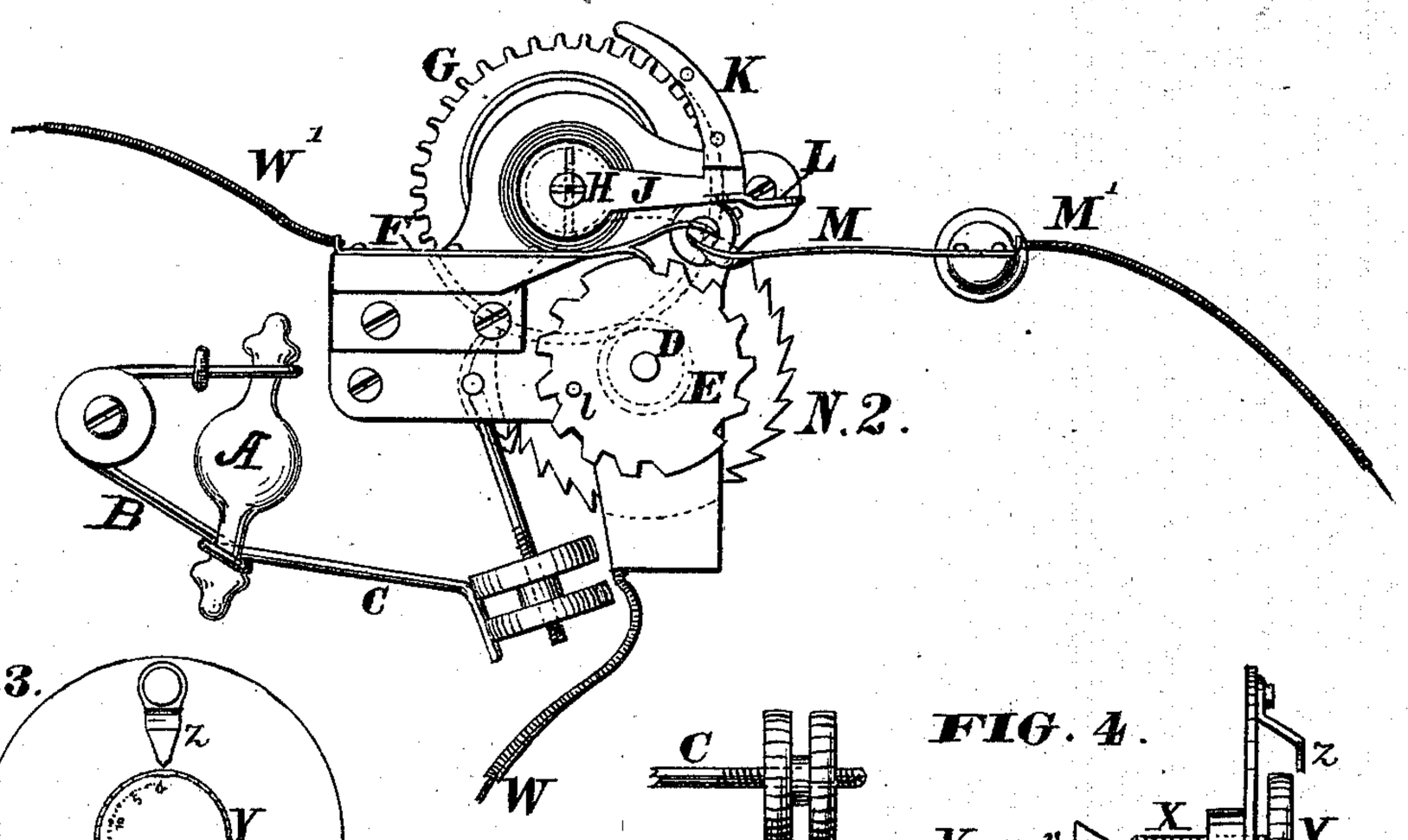


FIG. 3.

FIG. 4.

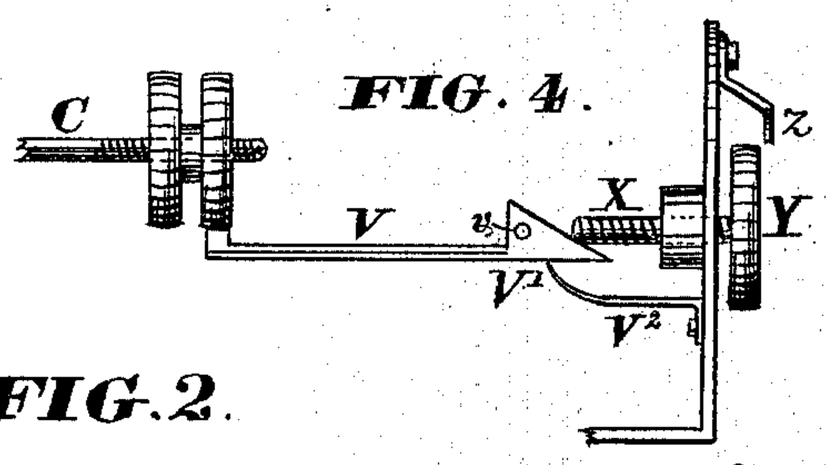
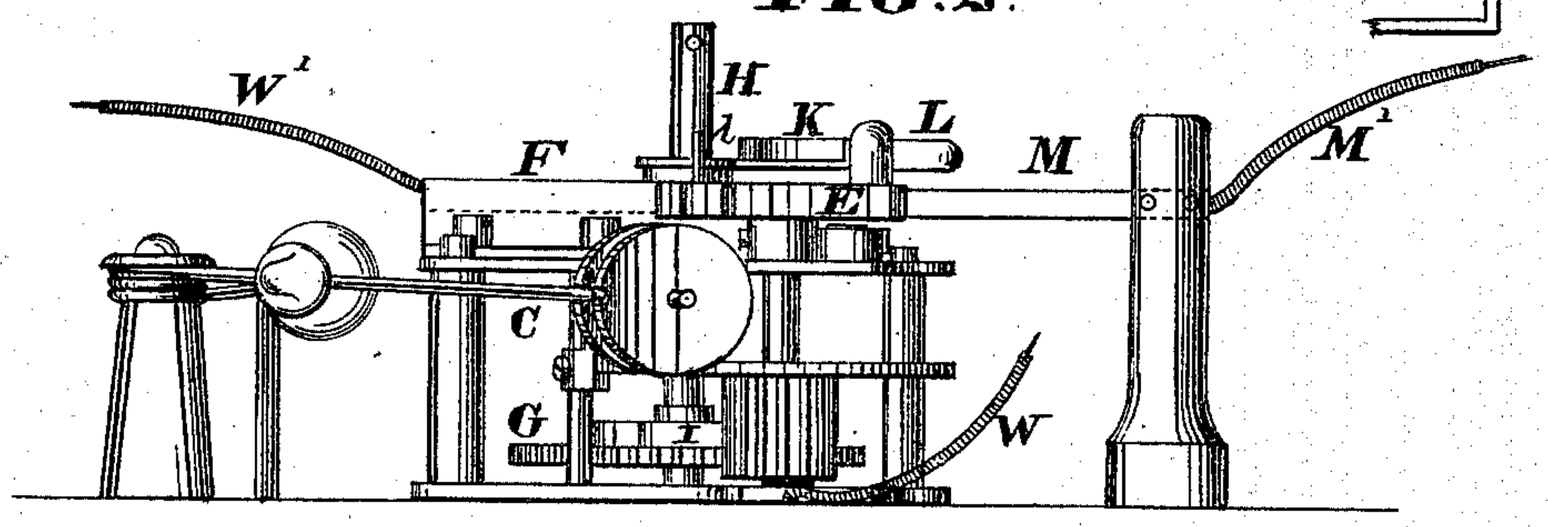


FIG. 2.



WITNESSES.

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FIG. 5.

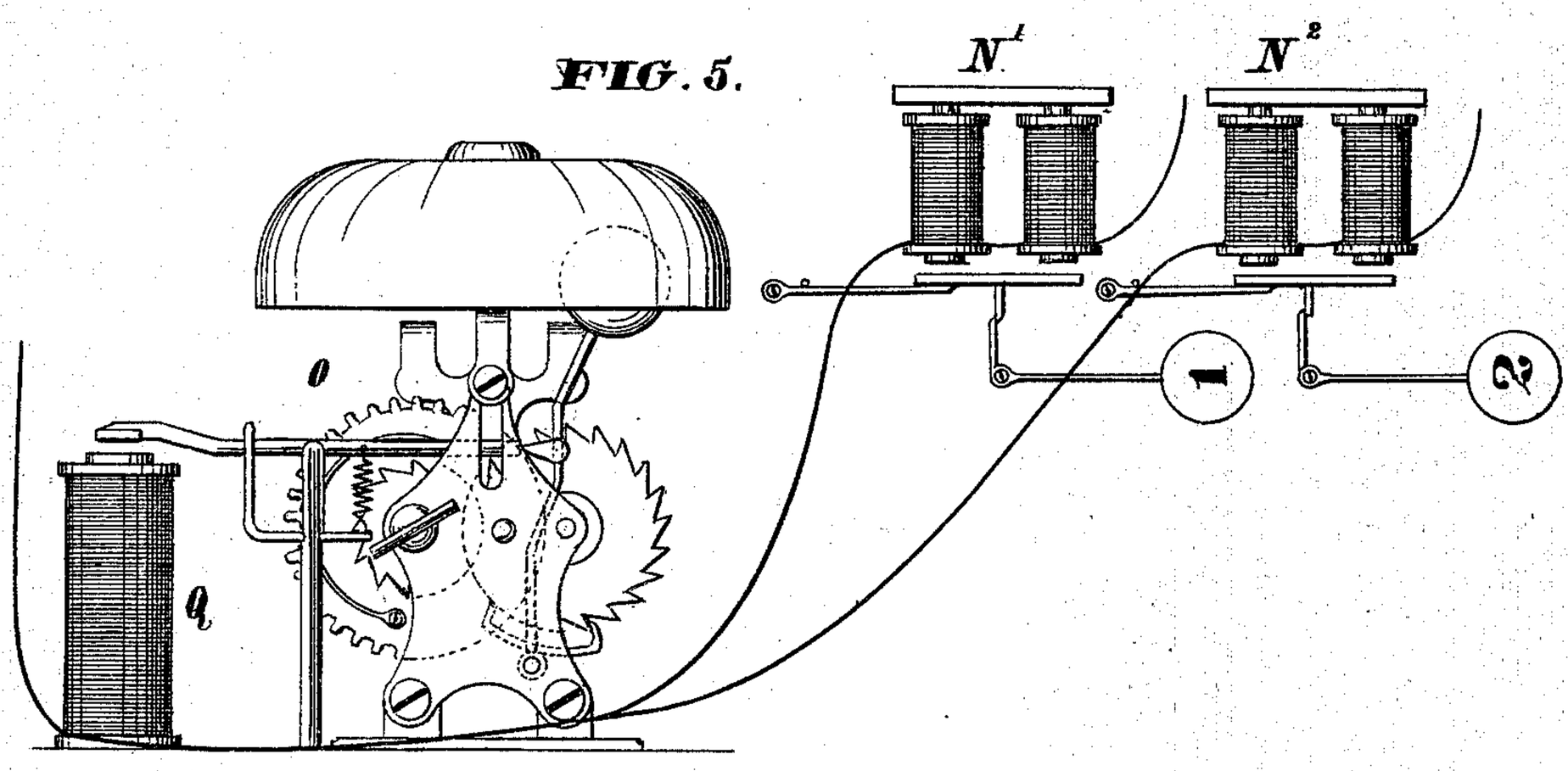


FIG. 6.

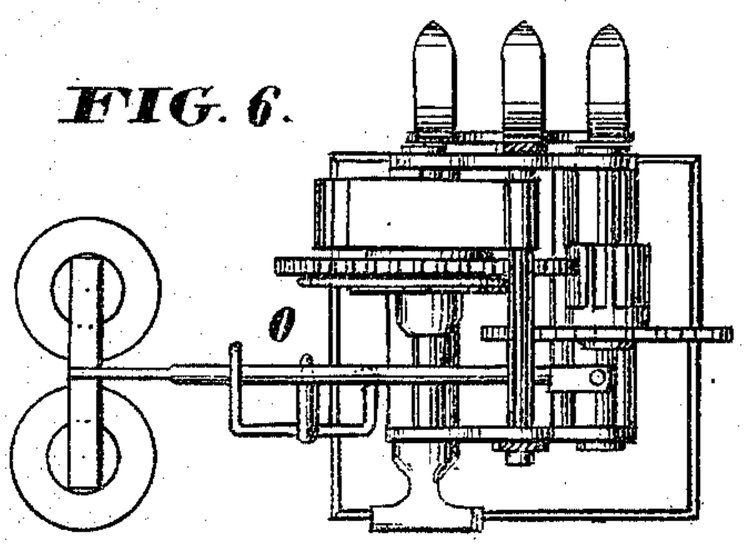


FIG. 7

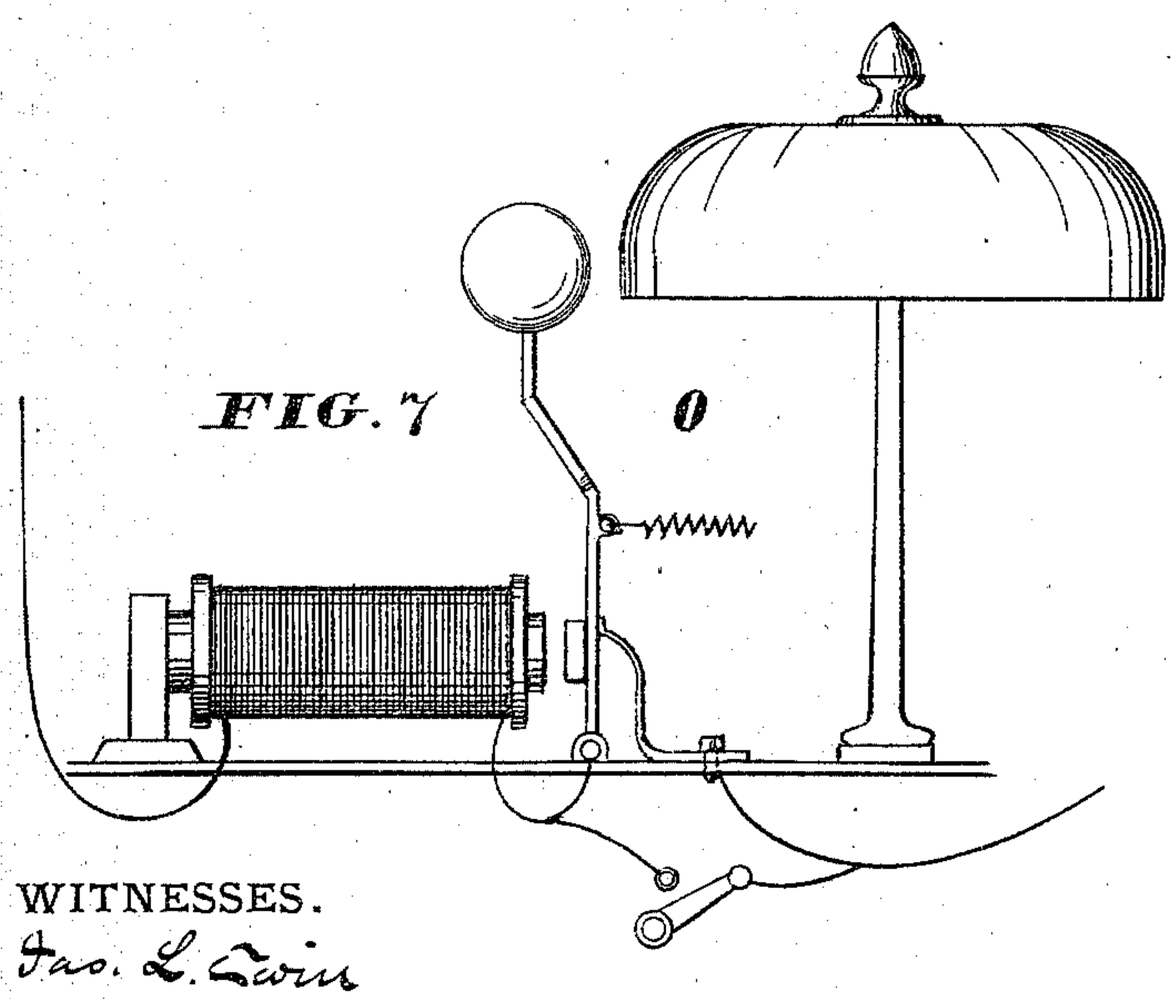
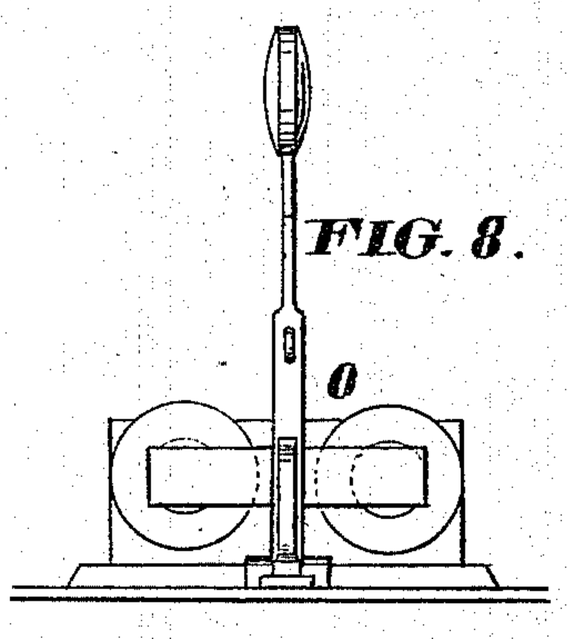


FIG. 8.



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3 Sheets--Sheet 3.

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District and Fire-Alarm Telegraphs.

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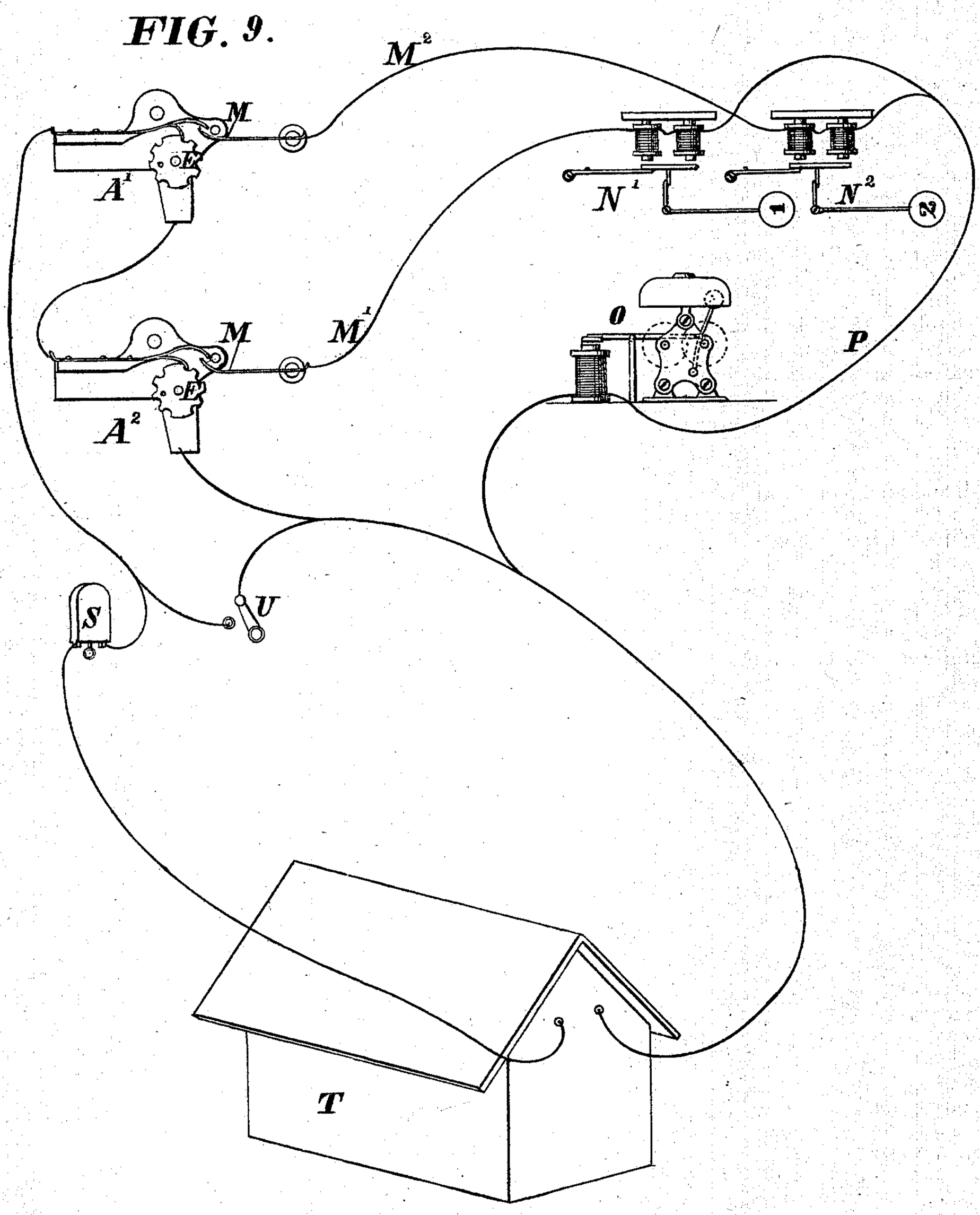
FIG. 9.



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UNITED STATES PATENT OFFICE.

JOHN H. GUEST, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN DISTRICT AND FIRE-ALARM TELEGRAPHS.

Specification forming part of Letters Patent No. **144,535**, dated November 11, 1873; application filed October 29, 1873.

To all whom it may concern:

Be it known that I, JOHN H. GUEST, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electro-Magnetic Alarms, of which the following is a specification:

In a patent issued to me of date 14th of October, 1873, I show a system whereby a series of automatic fire-detecters may be placed in a normally-closed telegraphic circuit arranged to automatically cause an alarm of fire to be turned into a central station without the intervention of local batteries. I have found, however, that it is desirable to also indicate such alarm at the place where the fire may be or other convenient point. Hence, the object of this invention is to combine with such normally-closed telegraph-line suitable indicators and alarms arranged so as to be operated on the main-line circuit without the intervention of local batteries and without interfering with the continuity of such main circuit; and to this end my invention consists, first, in combining, in a normally-closed circuit, one or more district alarm-signal boxes, one or more automatic fire-detecters, an indicator for each detecter, and an alarm-bell, the whole arranged and adapted to turn in an alarm to a central station, to sound an alarm in the house or local station or other convenient place, and to show, by an indicator, the point where the fire originates. My invention consists, second, in combining a house-alarm and annunciator or either of them with the closed circuit of a district alarm-telegraph. My invention consists, third, in combining an automatic detecter, a house-alarm, and annunciator with a normally-closed telegraphic circuit in such a manner that their operation will not interfere with or break the continuity of said circuit. My invention consists, fourth, in combining, with a fire alarm or other automatic signaling apparatus, a device for closing one connection at or before the time of breaking another, in order to preserve the continuity of a closed circuit, as hereinafter described. My invention consists, fifth, in the combination of a variable thermostat, constructed as hereinafter described, with an electro-magnetic alarm.

In the accompanying drawings, Figure 1 is a plan of an automatic fire-detecter. Fig. 2 is an elevation of the same. Fig. 3 is a front view, and Fig. 4 a side view, of a variable thermostat. Fig. 5 is an elevation of an alarm and annunciator. Fig. 6 is a plan of the said alarm with the bell and hammer omitted. Fig. 7 is a side elevation of an electric alarm, and Fig. 8 an end view of the magnet and hammer thereof. Fig. 9 is a diagram to illustrate the operation of the connected apparatus.

The thermostat represented in Fig. 1 consists of a mercurial bulb, A, connecting the ends of a spring, B, so that when the said bulb is broken by heat the spring will liberate the detent-lever C, which is mounted on the escapement of a clock-train, the shaft D of which carries the notched signature-wheel E, which turns in an automatic signal to the central station by making and breaking connection with the insulated contact-spring F, the line-wires W W′ being attached, one to the frame in which the clock-train runs and the other to the spring F. All the signature-wheels E in one house are alike, their office being to communicate automatically with the central office. The shaft D carrying the escapement and signature wheels is driven through the medium of a larger gear-wheel, G, with which the spring-shaft H communicates through a click, I, for winding, the effect being to impart to the shaft D two, three, or more revolutions to one of the shaft H. On the shaft H is an arm, J, carrying a non-conducting tappet, K, and a stop, L, the office of the tappet being at the termination of the rotation of the shaft to press the spring M, which connects with the branch or annunciator wire M′ against the spring F, and retract this out of contact with the wheel E, thus forming a new circuit. The movement of the apparatus is then arrested by the stop L coming against a pin, *l*, on the wheel E.

One of the machines above described is placed in each room of a house, or in any place where fire is to be detected.

The wire M^1 communicates with a corresponding indicator, N^1, of the annunciator, while the wire M^2, from a similar instrument in another room, will communicate with its own indicator N^2, (see Fig. 9,) all of the branch wires uniting in a common wire, P, leading to an alarm, O, one for each house, the said alarm

and the annunciator being located in any proper position for the object intended. The alarm may be of the clock-train kind, such as shown in Fig. 5, with an electro-magnet, Q, to liberate the escapement, and this I prefer, because its operation does not involve any breaking of the circuit. If desired, an automatic electric alarm, such as shown in Fig. 7, or any preferred form of alarm, may be used. S represents a signal-box of any suitable kind, one of which is employed in each house or local station for signaling by hand. T represents the central office. U is a switch, by means of which the operator may shunt out the automatic-detecting and local-alarm apparatus when desired.

Any preferred form of annunciator may be used, the simple dropping-tags being shown in Figs. 5 and 9 merely for illustration.

A novel form of variable thermostat is shown in Figs. 3 and 4. It consists of a compound metallic bar, V, fulcrumed at *v*, and having an oblique heel, V^1, pressed, by a spring, V^2, against the end of a set-screw, X; the head Y of which may be a graduated dial working under an index, Z.

It will now be apparent that the turning out of the screw X, by slightly retracting the end of the compound bar from the head of the detent-lever C, will permit a more slight deflection of said bar by heat to release the lever, and the figures on the dial may indicate the degree of heat to which the apparatus may be set.

The operation of the entire apparatus will be understood by reference to Fig. 9, which is a diagram of a connected system of apparatus in one house or local station, with wires connecting the same with the central office T. Supposing a fire to occur in the room where the instrument A′ is located, the first effect is to turn in an automatic alarm to the central office, indicating the house in which the fire has broken out. This signal is repeated as many times as the wheel E may be arranged to run before being stopped by the arm J. The next effect is to close the circuit at M, and an instant after break the contact between F and E, thus throwing the whole line-current through the alarm O and the section N′ of the annunciator, so as to arouse the proprietor of the house, and indicate instantly the room in which the fire occurs.

It will be seen that in the normal condition of the apparatus each detecter instrument constitutes a part of a continuous closed circuit emanating from the central office T, where is contained the battery-force by which the entire mechanism is worked in any desirable number of connected houses or local stations.

My invention dispenses entirely with the need of local batteries, and supplies battery-power from one central station, for domestic use in any desirable number of houses.

The following is claimed as new:

1. The combination, in a normally-closed circuit, of one or more district alarm-signal boxes, one or more automatic fire-alarms, indicators for each fire-alarm, and an alarm mechanism, arranged to turn in an alarm to a central station, and to sound an alarm in the house where the automatic fire-alarms are placed, or at other convenient point, and to show by an indicator the point whence the alarm originates, all through the operation of one main circuit, substantially as set forth.

2. The combination, with a normally-closed circuit, of a district alarm-signal box and a house-alarm, substantially as set forth.

3. The combination, with a normally-closed circuit, of a district alarm-signal box, and a local indicator, substantially as set forth.

4. The combination, with a normally-closed circuit, of a district alarm-signal box, a house-alarm, and a local indicator, substantially as set forth.

5. The combination, with a normally-closed telegraphic circuit, of an automatic fire-detecter, a house-alarm, and an indicator, arranged to be operated without any break in the continuity of the circuit.

6. The combination, with a fire-alarm box or other automatically-acting signaling device, of devices for closing one circuit at or just before the time another circuit is broken, for preserving the continuity of a circuit, substantially as set forth.

7. The variable thermostat, Figs. 3 and 4, in combination with an electro-magnetic fire-alarm.

J. H. GUEST.

Witnesses:
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