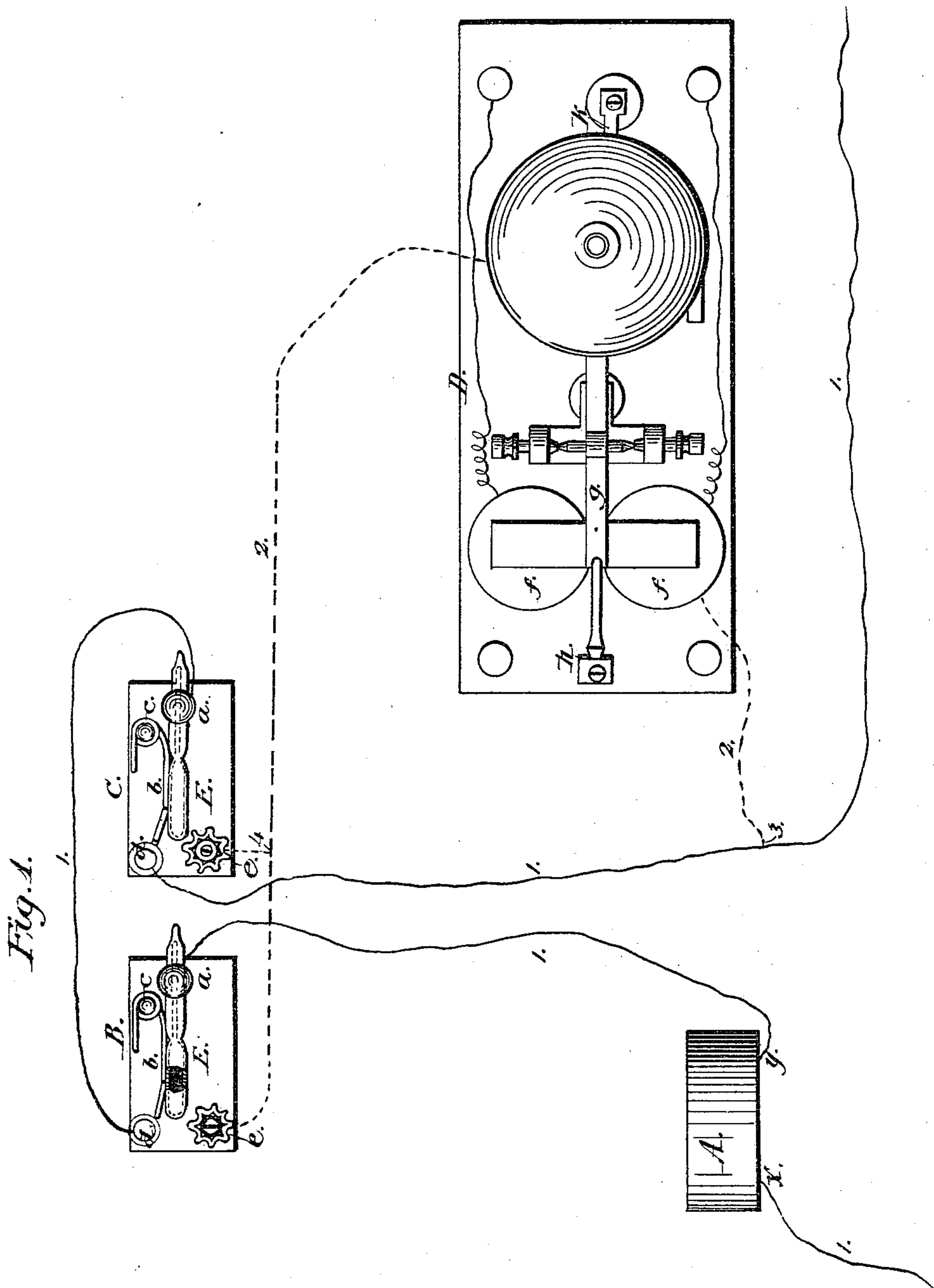


J. H. GUEST.

Automatic Fire-Alarms and Circuits Therefor.

No. 148,608.

Patented March 17, 1874.



Witnesses:  
 Z. F. Wilbur  
 Thomas L. Barnum.

Inventor:  
 J. H. Guest.

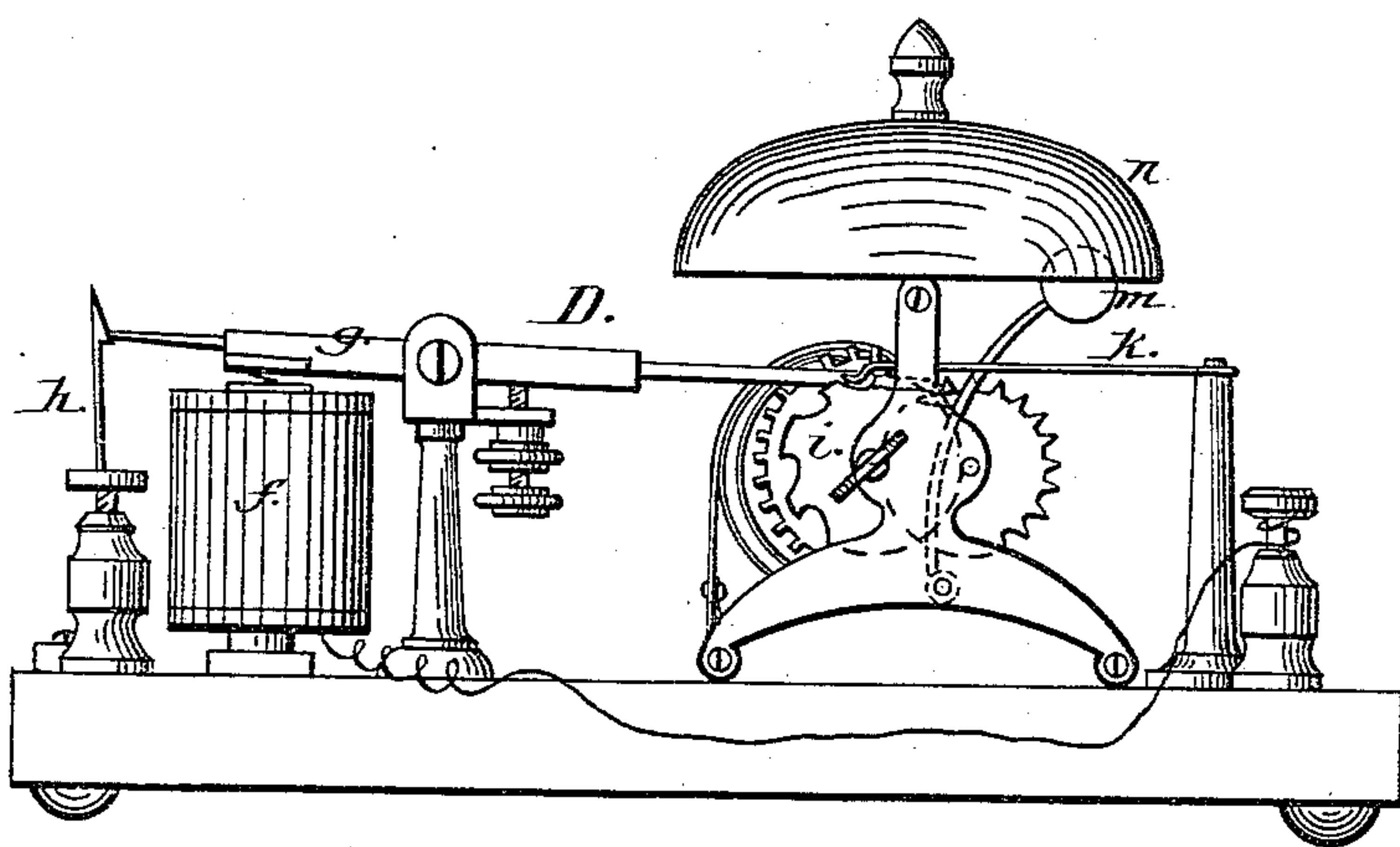
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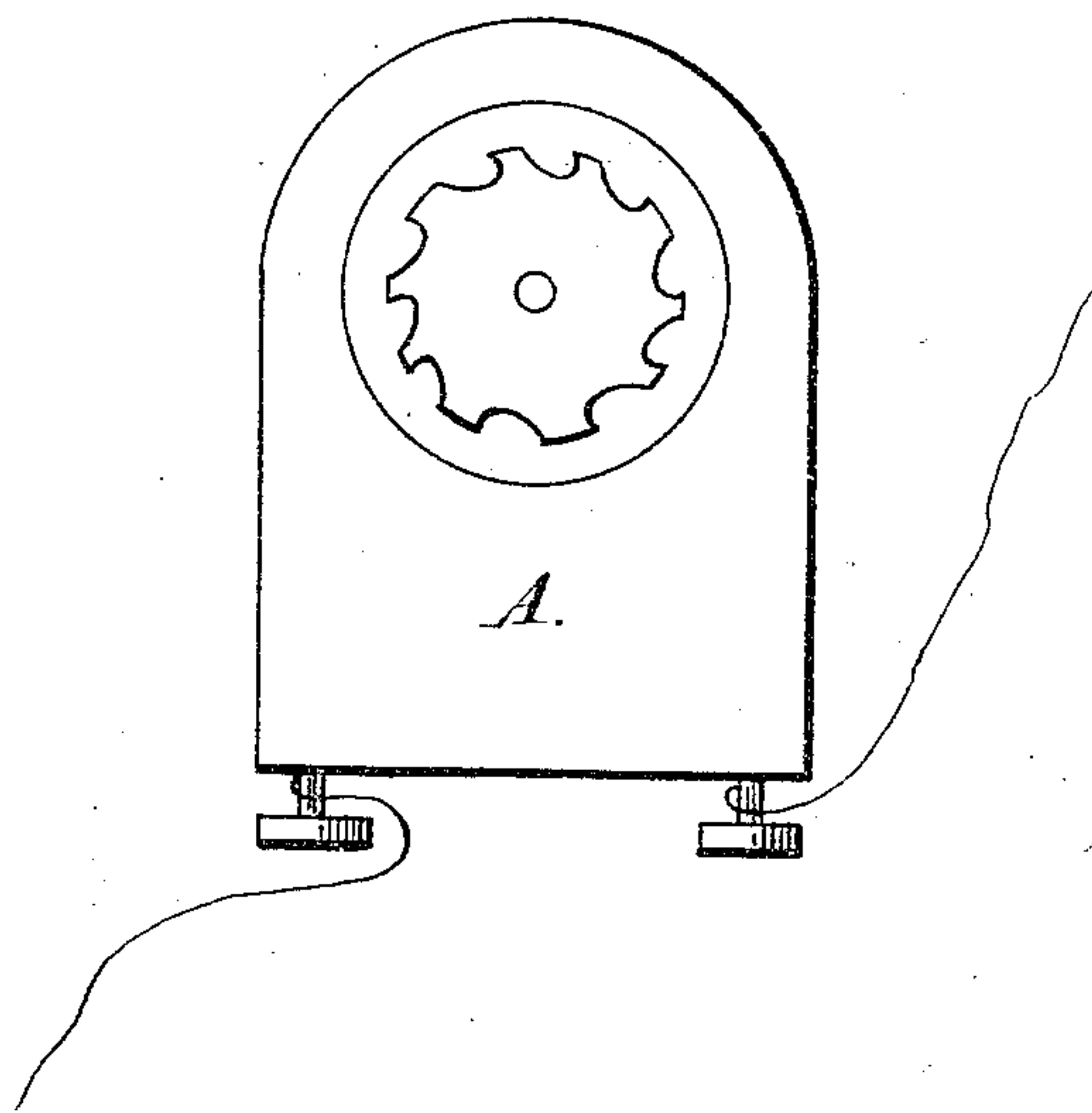
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*Fig. 2.*



*Fig. 3.*



*Witnesses:*

*Z. Z. Miller*  
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*J. H. Guest*



# UNITED STATES PATENT OFFICE.

JOHN H. GUEST, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN AUTOMATIC FIRE-ALARMS AND CIRCUITS THEREFOR.

Specification forming part of Letters Patent No. 148,608, dated March 17, 1874; application filed February 7, 1874.

*To all whom it may concern:*

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

In Letters Patent Nos. 143,344, 143,691, and 144,535, granted me by the United States, I have described certain systems of district and fire-alarm telegraphs. In all of these, however, in operating to give an alarm of fire automatically, in connection with the normally-closed circuit of a district or other telegraph-line, an alarm mechanism is necessary with each thermostat.

The object of my present invention is to dispense with these alarm mechanisms at each thermostat, and to provide a system in which a single alarm mechanism controlling the circuit is in turn controlled by each and all of the thermostats placed in a building or house, thus simplifying the apparatus necessary and enabling one alarm mechanism to give the necessary signals, no matter how many thermostats may be in the circuit. To this end my invention consists in the thermostat, arrangement of circuits, and alarm mechanism, as more specifically hereinafter described and claimed, reference being had to the drawings accompanying and forming part of this application.

In these drawings, Figure 1 is a diagram of the arrangement of circuits, showing, also, the peculiar construction of my thermostat. Fig. 2 is a side view of my alarm mechanism; and Fig. 3 represents a front view of any ordinary district-alarm box.

Referring to Fig. 1, B and C are representations of two of my thermostats. Each are exactly alike and lettered alike. On a suitable metallic base is secured a standard, *a*, having an aperture through it in the direction of length of the base. E is a tube of glass, in which a quantity of mercury or other expansible material is hermetically sealed and arranged to be broken by the expansion of such material at some determinate degree of heat. *b* is a metallic spring fastened to or held by standard C and arranged to impinge in its normal position against or on the metallic piece *e*, which is insulated from the base whenever the thermostat

E is slid into the aperture described as being in *a*. The spring *b* is held thereby against or on another insulated metallic contact-piece, *d*. As thus shown, this thermostat may be used either upon an open or closed circuit, in connection with any suitable alarms. If it be desired to use it on an open circuit, one pole is brought to *a* or *c* and the other to *e*. Now, if the tube E breaks, the spring *b* flies over into or against *e* and closes the circuit. If used on a closed circuit, the terminals are at *a* or *c* and *d*, whereupon the tube E, breaking the spring, is released from *d* and breaks the circuit. In the arrangement of circuits I prefer to use that shown in Fig. 1. A is an ordinary district-alarm signal-box. B and C are thermostats placed in different rooms or parts of the house. Of these there may be any number, although I have only represented two, that number being sufficient to show the system. D is the alarm and signaling mechanism, shown in side view in Fig. 2, in which *i* is the circuit-breaking wheel driven by clock-work, which also actuates the clapper *m* of the gong *n*. On the end of the armature-lever *g*, which is actuated by the magnets *f*, is a stop restraining the clock-work. Bearing upon the break-wheel *i* is a spring, *k*. From the central station, not shown in the drawing, the main line 1 enters the house and connects to the box A at *x*, going through such box and emerging at *y*. It proceeds to thermostat B, connecting to *a*, thence by spring *b* to *d*, thence to *a*, *b*, and *d* of thermostat C, and in similar manner, through any number thereof, from the last of which the main line proceeds from *d* back to the central office, directly or through the remaining houses in the district. By this arrangement the continuity of the main line is preserved for the use of any of the houses or stations in the circuit. From the post *e* of each thermostat proceeds a local circuit, shown in broken lines and marked 2. This circuit leads to the spring *k*. This spring ordinarily forms electrical contact with the wheel *i*, from which the circuit 2 leads to the magnets *f*. From these magnets this circuit leads to and is joined to the main circuit, at a point, 3, within the house or place to be guarded, so that this local or branch or shunt in no way interferes with the circuit outside of such house.

The operation of this arrangement is as fol-



lows: The devices and circuits being in their normal condition, as seen in Fig. 1, and the thermostatic tubes or bulbs E made to break at a certain degree of temperature, supposing a fire breaks out in any apartment, raising the temperature to the degree required to break E, the spring *b* immediately flies over on or against *e*, breaking the direct main circuit 1 and forming a new circuit. The current now proceeds from the box A to *a*, thence by *b* to *e*, thence by 2 to *k*, and through *i* to magnets *f*. These magnets immediately attract their armature, which releases the clock-work, sounding the alarm in the house and revolving the wheel *i*, which gives the required signal at the central station or other desired place. As soon as the armature and its lever *g* are attracted by the magnet, the tail of the lever slips under the spring-catch *h*, whereby the lever and armature are locked and prevented from interfering by vibrating with the alarm to be turned in.

It is evident that annunciators may be placed in the local circuit or circuits 2 for denoting the room or place from which the alarm proceeds. Of course, the box A may or may not be used, as, in places where there are no central stations or facilities for supplying battery-power, the current may be supplied by a battery in the house, arranged as shown, so that it is always on a closed circuit.

I propose to apply the same system to automatically give notice of attempted burglaries, for which I shall make application for Letters Patent.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a frangible bulb or tube with a spring, *b*, for making or breaking an electrical circuit, substantially as set forth.

2. The combination, with an electrical circuit, of one or more frangible tubes or bulbs, controlling circuit closing or breaking devices, substantially as set forth.

3. The combination, with the normally-closed circuit of a district, alarm, or other telegraph-line, of branch or local shunt-circuit, a suitable alarm placed therein, and thermostats controlling such circuit, substantially as set forth.

4. The combination, with one alarm apparatus, of one or more thermostats, and an electrical circuit operating such alarm and controlled by the thermostats, substantially as set forth.

J. H. GUEST.

Witnesses:

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