

(No Model.)

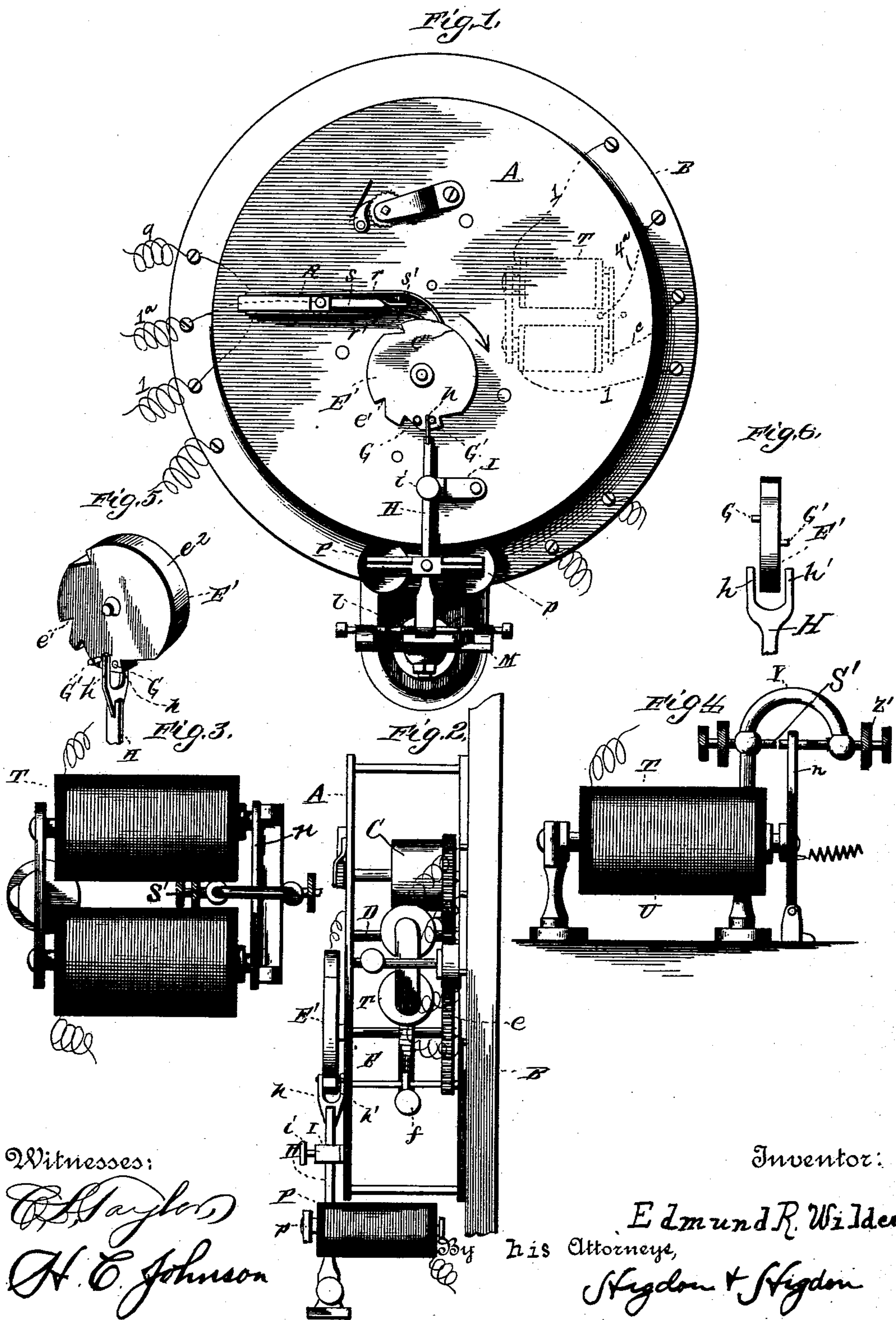
2 Sheets—Sheet 1.

E. R. WILDER.

ELECTRIC BURGLAR OR AUTOMATIC FIRE ALARM.

No. 436,030.

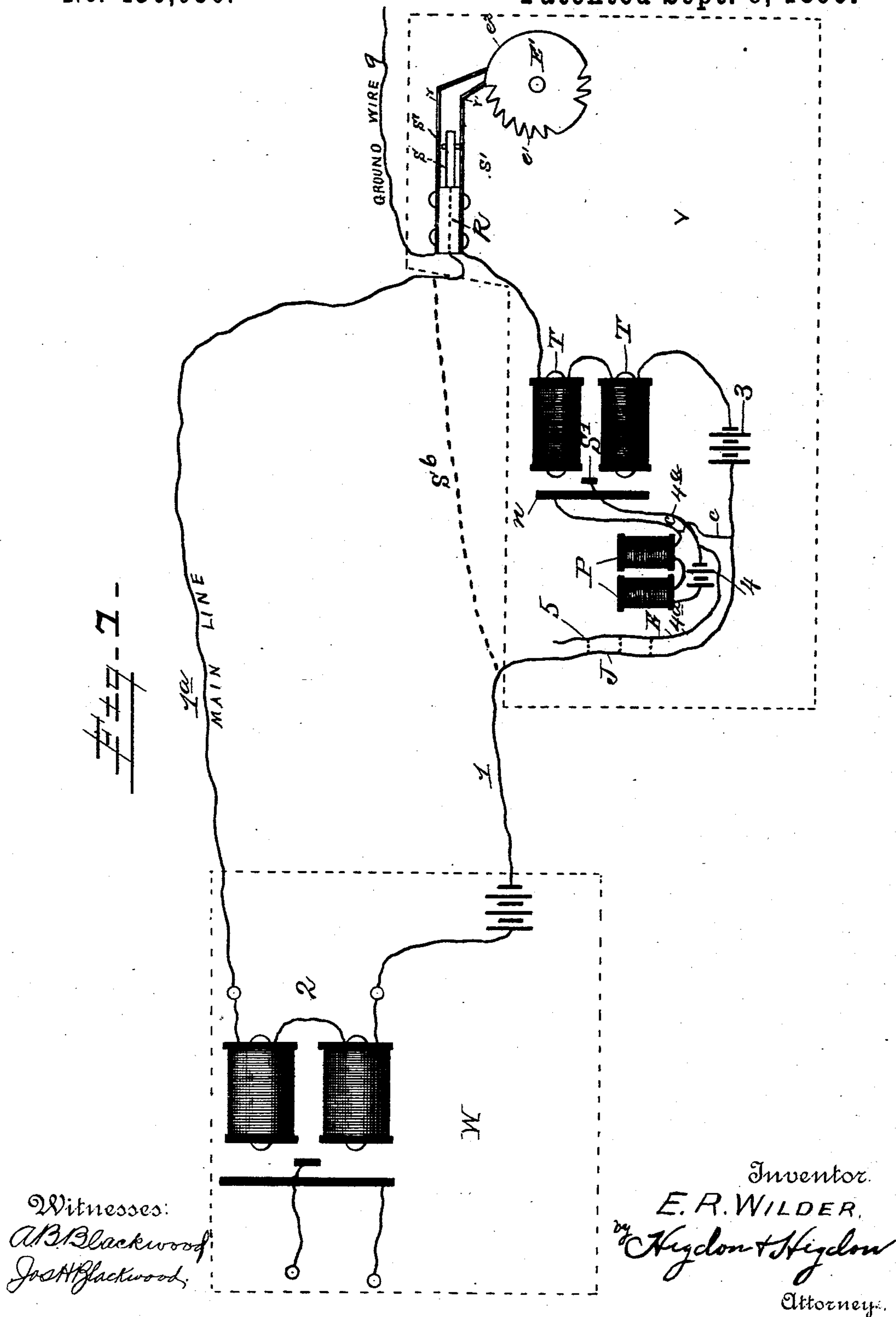
Patented Sept. 9, 1890.



2 Sheets—Sheet 2.

ELECTRIC BURGLAR OR AUTOMATIC FIRE ALARM.

Patented Sept. 9, 1890.



UNITED STATES PATENT OFFICE.

EDMUND R. WILDER, OF KANSAS CITY, MISSOURI.

ELECTRIC BURGLAR OR AUTOMATIC FIRE ALARM.

SPECIFICATION forming part of Letters Patent No. 436,030, dated September 9, 1890.

Application filed November 29, 1889. Serial No. 331,865. (No model.)

To all whom it may concern:

Be it known that I, EDMUND R. WILDER, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Electric Burglar or Automatic Fire Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to certain improvements in electrical burglar-alarms; and it consists in the construction, arrangements, and the combination of the parts of which it is composed, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by similar letters and figures, Figure 1 is a plan view of my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a detail top view of the safety-magnet. Fig. 4 is a detail side view thereof. Fig. 5 is a detail perspective view of the alarm-wheel with parts contiguous thereto, taken from below. Fig. 6 is a side view thereof. Fig. 7 is a diagrammatic representation of the circuits which are used in my invention.

Upon a suitable base-board B is mounted a train of clock-work D, which is driven by a spring contained within the drum C and regulated by the escapement *f*. Upon the central shaft E of this train of clock-work and above the upper plate A of its supporting-frame is secured the non-conducting alarm-wheel E', which has a series of teeth *e'* upon its periphery and a smooth portion *e''*. The movement of this wheel E' is regulated by the forks *h* and *h'* upon the pivoted lever H, the movement of which is in turn regulated by the magnet P and its antagonistic coil-spring *l*.

In order to form the necessary connection between the wheel E' and the lever H, whereby the former will be regulated, two pins G and G' are secured in the wheel E' upon different radii thereof, the pin G' projecting from the bottom of the said wheel while the pin G projects from the top thereof, the clock-work having a tendency to drive the wheel in the direction indicated by the arrow. It will thus be seen that the lower fork *h'* of the lever H will normally lie in front of and obstruct the lower pin G' of the wheel, and that upon a

passage of a current of electricity through the coil of the electro-magnet P, located beneath the lever H, the latter will be drawn down, together with the armature *p*, secured thereto, and will be held in this position as long as the current passes through the coil, and will while thus held down cause the upper fork *h* thereon to obstruct the upper pin G, and thus stop the wheel before it has completed a full revolution. Upon the current ceasing the lever H will be thrown up by the action of the spring *l*, and its upper fork releasing the upper pin G, the wheel will rotate until its lower pin G' engages the lower fork *h'*. The pins G and G' are so arranged upon the wheel in relation to the smooth portion *e''* of its periphery that the wheel will be in a position for the pins G and G' to be engaged by the forks *h* and *h'* when the ends of the pens *r r'* bear upon such smooth portion. These pens *r r'* consist of spring-pieces secured to an insulating-base R and lie upon both sides of the arm *s*, which carries contact-points *s'*. It will be noticed that by this construction if the end of the pen *r'* bear upon the smooth portion of the periphery of the wheel E' or upon the point of the teeth *e'* a contact will be made with the arm *s* through one of its contact-points *s'*, and if the end of the said pen rests between two of the said teeth or in the hollow thereof such a contact is broken, while the reverse will be true in all respects of the pen *r*, and these different positions of the pens will be understood from an examination of Figs. 1 and 8. Upon the base-board I also secure the safety-magnet T T, the armature *n* of which will when drawn thereto make contact with the adjustable contact-point *s'*, which is connected to one pole of the local circuit, the said armature being connected to the opposite pole thereof, as will be described.

In order to regulate the movements of the lever H, I use a set-screw *i*, carried in a bracket I.

The circuits used by me are as follows: The main line 1 1^a is run from the central station W, which is provided with any suitable form of annunciator 2, to the building V to be protected, in which building the line 1 is looped through the windows and doors thereof and including the house-battery 3, passed

around the safety-magnets T, and is connected to the pen r' , the arm s being connected to the line 1^a , while the pen r is connected to the ground. It will thus be seen that under
 5 ordinary conditions the circuit will be constantly closed between the pen r' and the arm s , whereby the corresponding indications will be given at the central station.

In order to cause the raising of a window, &c., to release the wheel E' , a local circuit 4^a
 10 is provided, in which circuit is placed the magnet P and the local battery 4, one of the poles of which latter is connected to the wire 5, which is also looped through the windows
 15 and doors of the house, and is adapted to make a contact with the line 1 upon a disturbance thereof. The opposite pole of the local battery 4 is connected with the coils of the magnet P, which are in turn connected
 20 with the armature n of the magnet T and with the main line 1 at c , the first-named pole of the said battery being also connected with the adjustable contact-point s' . It will thus be seen that if a contact is made at any win-
 25 dows J between the main line 1 and the wire 5 the local circuit will be completed through the said J and c , whereby the magnet P will be energized and will draw down the lever H, releasing wheel E' , as described. The move-
 30 ment of this wheel will cause the main circuit to be made and broken between the pen r' and the arm s , causing corresponding current to pass over the main line and to be received at the central station. It will also be noticed
 35 that if the main line be broken and grounded between the central station and the house to be protected a circuit could be completed between the ground end of the said wire and the pen r through the ground-wire 9 and the
 40 earth. This entire circuit would be so completed in such a case upon the revolution of the wheel E' when the end of the spring r falls into the notches between the teeth e' thereof and makes a connection with the arm
 45 s , whereby the alarm will be sent in.

In order to notify the central station in case it is attempted to short-circuit the lines 1 1^a outside the building, as indicated at S^6 , dotted lines, the house-battery 3 is made of
 50 such strength as to attract the armature n of the magnet T upon such a circuit being formed, in which case the armature will be drawn, making contact with the point s' , closing the local circuit through the magnet P,
 55 and thus releasing the wheel E' , as has been heretofore described, whereby an alarm will be sent to the central station, as has been already made known.

It will be evident that several houses may
 60 be looped on one main wire, and that the teeth e' on the wheel E' may be so arranged as to send in a distinctive signal for each house.

I am aware of the invention disclosed in
 65 Patent No. 186,887, granted January 30, 1877, to Selden, and I do not desire to claim the construction shown therein.

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

1. The combination, with a revolving tooth-wheel, of two pens bearing upon the said
 70 wheel, one of the said pens being connected with one of the leads of the main circuits and the other with the ground, and an arm con-
 75 nected with the other lead of the main circuit and having contacts thereon contacting with said pens, as described.

2. The combination, with a revolving wheel, of two pens bearing thereon, each of the said
 80 pens consisting of a piece of spring metal, and an arm having contact-points thereon con-
 85 tacting alternately with each of the said pens, as described.

3. The combination, in a burglar-alarm, of a main circuit, a safety-magnet and a battery
 85 included in the said main circuit in the locality to be protected, the said battery being of such a strength as not to attract the arma-
 90 ture of the said magnet under normal conditions, but being of a sufficient strength to at-
 95 tract the said armature upon the said main line being short-circuited, a local circuit located within the area to be protected, mech-
 100 anism included in the said local circuit and controlling an alarm at a central station, and
 105 a contact-maker for the said local circuit consisting of the armature of the said safety-magnet, as described.

4. The combination, in a burglar-alarm, of a main circuit, a safety-magnet and a battery
 105 included in the said main circuit in the locality to be protected, the said battery being of such a strength as not to attract the armature
 110 of the said magnet under normal conditions, but being of sufficient strength to attract the
 115 said armature upon the said main line being short-circuited, a local circuit located within the area to be protected, a revolving wheel,
 120 mechanism for governing the movement of the said wheel actuated by the current of the local
 125 circuit, a contact-maker for the said local circuit consisting of the armature of the said safety-magnet, and a contact-maker included
 130 in the main circuit and actuated by the movement of the said wheel, as described.

5. The combination, in a burglar-alarm, of a main circuit, a safety-magnet and a battery
 135 included in the said main circuit in the locality to be protected, the said battery being of such a strength as not to attract the armature
 140 of the said magnet under normal condition, but being of sufficient strength to attract the
 145 said armature upon the said main line being short-circuited, a local circuit located within the area to be protected and consisting of
 150 two branches, a revolving wheel, mechanism for governing the movement of the said wheel actuated by the current of the local circuit, a
 155 contact-maker for each of the said branches of the local circuit, one of the said contact-
 160 makers consisting of the armature of the said safety-magnet and the other consisting of a
 165 maker actuated upon the opening of the door, window, &c., and a contact-maker included

in the main circuit and actuated by the movement of the said wheel, as described.

6. The combination, in a burglar-alarm, of a main circuit, a safety-magnet and a battery 5 included in the said main circuit in the locality to be protected, the said battery being of such a strength as not to attract the armature of the said magnet under normal condition, but being of sufficient strength to attract the 10 said armature upon the said main line being short-circuited, a local circuit located within the area to be protected and consisting of two branches, a revolving wheel, mechanism for governing the movement of the said wheel 15 actuated by the current of the local circuit, a contact-maker for each of the said branches of the local circuit, one of the said contact-

makers consisting of the armature of the said safety-magnet and the other consisting of a maker actuated upon by the opening of the 20 door, window, &c., two pens bearing upon the said wheel, and an arm having contact-points thereon contacting alternately with the said pens, one of the said pens being connected with the ground and the remaining pen and 25 the said arm being connected to the opposite leads of the main circuit, as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDMUND R. WILDER.

Witnesses:

J. W. FREELEY,
J. C. SMITH.