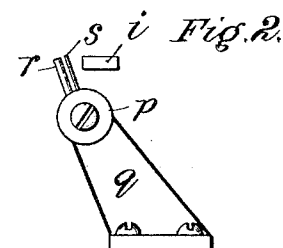
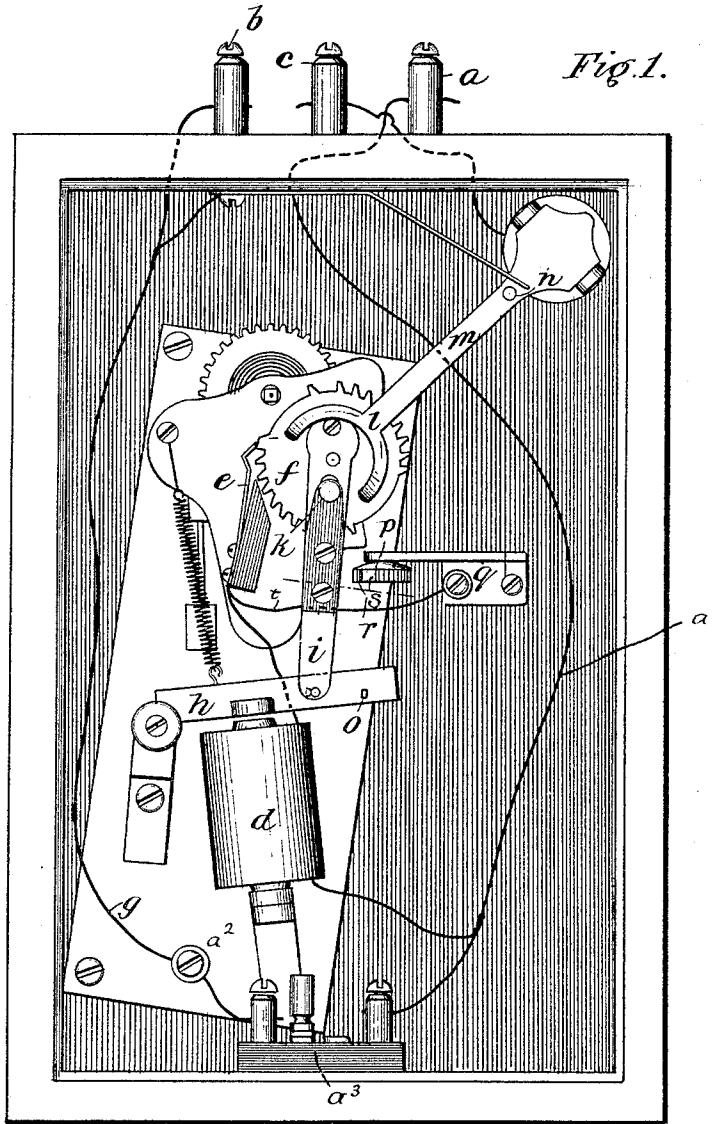


(No Model.)

J. YOUNG.
FIRE ALARM SIGNAL BOX.

No. 437,668.

Patented Sept. 30, 1890.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN YOUNG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

FIRE-ALARM SIGNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 437,668, dated September 30, 1890.

Application filed March 26, 1887. Serial No. 232,605. (No model.)

To all whom it may concern:

Be it known that I, JOHN YOUNG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented a certain new and useful Improvement in Fire-Alarm Signal-Boxes, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this
10 specification.

My invention relates to an automatic fire-alarm, and more especially to the signal-box described in my patent, No. 313,040, of February 24, 1885. In my said patented box, in
15 case the circuit is momentarily closed, the signal will be sent a less number of times than when the circuit is closed continuously.

My invention herein consists in an attachment adapted to be applied to said patented
20 box, by means of which the break-wheel will be started automatically immediately after its first revolution, so that the break-wheel will, when once started in case of true alarm, make two revolutions instead of one, as heretofore, and thus the signal will be repeated
25 four times instead of twice. In case of a false alarm—that is, a momentary closing of the circuit—the signal will be sent in once only, as heretofore, but the circuit will be left
30 closed through the box by means of my attachment, so that in case of a true alarm being sent in before the attachment has reset the box the break-wheel will be set in motion and make one full revolution.

35 My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a signal-box provided with my attachment for closing the circuit so as to start the break-wheel a second
40 time. Fig. 2 is a detail view of the circuit-closing attachment and the arm which is carried by the break-wheel about to close upon the same.

45 Like parts are indicated by similar letters of reference throughout the different figures.

The binding-post *a* may be connected to line leading to the battery, register, and ground at the central station. Binding-post *b* may be connected to the thermostats throughout
50 the building. Binding-post *c* is connected to ground.

The circuits of the box may be traced from binding-post *a*, by wire *a'*, through electro-magnet *d*, and thence to the circuit-spring *e*, and thence through the break-wheel *f*, and
55 thence through the metallic portions of the box to point *a''*, and thence by wire *g* to post *b*. In the bottom of the box the usual switch *a'''* is provided for shunting the electro-magnet out of circuit.

60 The box is shown set ready to be started by the closing of the circuit at binding-post *b*. Closing the circuits energizes the electro-magnets, and the armature-lever *h* is moved so as to release the arm *i*, and the clock-
65 spring sets the break-wheel in motion, carrying with it the said arm *i*. As the stud *k* comes under the convex semicircular piece *l* of the ground-circuit, closing lever *m*, said lever *m* is lifted to close the circuit to ground
70 at point *n*. Thus in any event the circuit will be closed to ground during a portion of each revolution, since in this manner the wire *g* will be connected from contact *n* to binding-post *c*, which binding-post *c* is provided
75 with a ground-connection. The stud *k* leaves the portion *l* of lever *m* as arm *i* approaches stop *o*, so that the ground-connection is broken at *n*, so that the box will be open in case the box was started accidentally. When
80 the arm *i* has completed its revolution, or rather just before it has completed its revolution, it is arrested by the stop *o* in case of false alarms; but in case of true alarms it is helped over said stop *o* by the circuit being
85 closed through wire *t* to contact *s*, arm *i*, and break-wheel *f*. The circuit of the box is left open between circuit-spring *e* and break-wheel after a signal has been sent in—that is to say, when the arm *i* is arrested by stop *o* the
90 wheel *f* will be in such position that the spring *e* will not be in contact with any of the teeth of the break-wheel. As heretofore constructed, the break-wheel is thus stopped and left open at the first revolution. By my
95 invention herein the circuit is closed through a shunt automatically formed around the break between the spring and break-wheel as the arm *i* is about to strike against stop *o*, and thus the armature-lever *h* is drawn down
100 and stop *o* is carried out of the path of the pin on the arm *i*, and thus the break-wheel,

and with it arm *i*, is carried by the clock-spring around a second time in case the circuit is closed at binding-post *b*. The second time, however, the circuit of the shunt will not be closed, as the wheel *p* is turned the first time far enough to carry the contact thereon out of reach of the arm, and hence the arm is arrested by stop *o* just before the second revolution is complete.

10 My automatic shunt-closer consists of a wheel *p*, mounted, preferably, on an insulated bracket *q*. From this wheel *p* projects an arm *r*. Back of this arm is placed the ribbon *s*, preferably of platinum, which serves as an electrical connection between the arm *i* and the wheel *p*. This wheel is normally set in the position shown, so as to bring the ribbon *s* and also the arm *r* into the path of the arm *i* as said arm *i* approaches the stop *o*. The wheel *p* is connected by wire *t* with the circuit-spring *e*, and arm *i* is connected with the break-wheel. Thus as the arm *i* has about completed its revolution it comes against ribbon *s*, and, pressing said ribbon against arm *r*, the circuit is closed through the shunt thus formed and remains closed until the arm *i* in its revolution, carrying with it the arm *r*, passes out of contact with said arm *r* or the contact-ribbon *s*. The wheel *p* is thus turned upon its axis far enough to take the arm *r* out of the path of the arm *i*, and hence the second time the arm *i* comes around it will find stop *o* in its path and be stopped, leaving the circuit of the box open between the circuit-spring *e* and the break-wheel. Thus in case of true alarms, when wheel *p* is properly set, the signal 91 will be repeated four times, and in case of an accidental momentary closing of the circuit through the box the signal will be sent in once only.

It will be seen that the signal is made thus more certain and the usefulness of the box much enhanced.

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

1. In a signal-box, the combination, with the break-wheel and circuit-closer, of an arm carried by the break-wheel and a ground-connection closed to said arm during about one-half of its revolution, a stop upon the armature-lever for arresting said arm, and an automatic shunting device in the path of the arm moving with the break-wheel, whereby the circuit may be closed through the electro-magnet to carry the stop out of the path of the said arm automatically, as described.

2. The combination, with the break-wheel provided with characters repeated thereon, of the circuit-spring, the clock-work, and the starting mechanism, said clock-work being connected with the break-wheel to actuate the same and the said starting mechanism consisting of an electro-magnetic device provided with a stop normally in the path of an arm carried by the break-wheel and a shunt *t* from the circuit-spring to a movable contact in the path of the said arm carried by the break-wheel, whereby in case of a true alarm the break-wheel is started a second time automatically to repeat the signals thereon, substantially as and for the purpose specified.

3. The combination, with the break-wheel of a signal-box, said break-wheel carrying an arm or lever *i*, of a shunting device or contact, against which said lever is closed upon its first revolution, said shunting device being connected between the electro-magnet of the box and the circuit-spring, whereby a shunt-circuit is closed momentarily between the electro-magnet and the break-wheel to release the break-wheel a second time, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 12th day of February, A. D. 1887.

JOHN YOUNG.

Witnesses:

WM. M. GILLER,
GEORGE P. BARTON.