

(No Model.)

2 Sheets—Sheet 1.

J. YOUNG.
FIRE ALARM SIGNAL BOX.

No. 313,040.

Patented Feb. 24, 1885.

Fig. 1

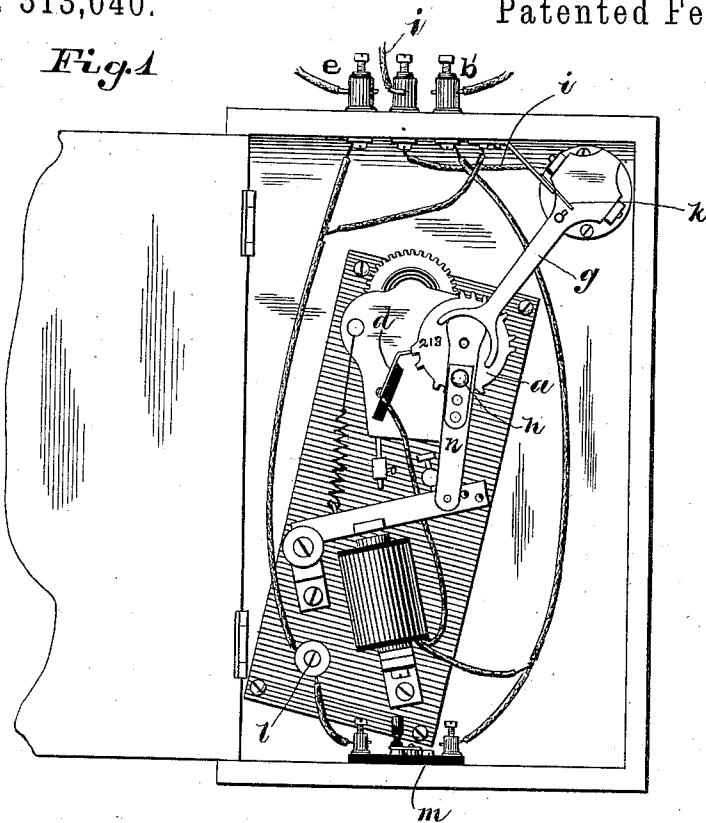
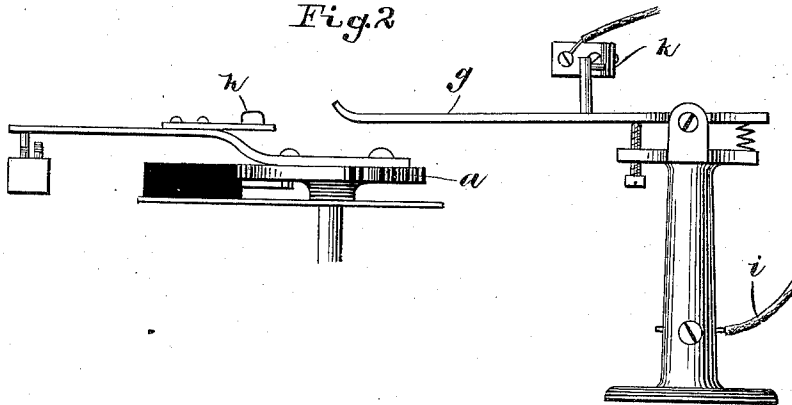


Fig. 2



Attest

Paul A. Staley
Millard P. Brown

Inventor

John Young

By his Attorney

George P. Barton

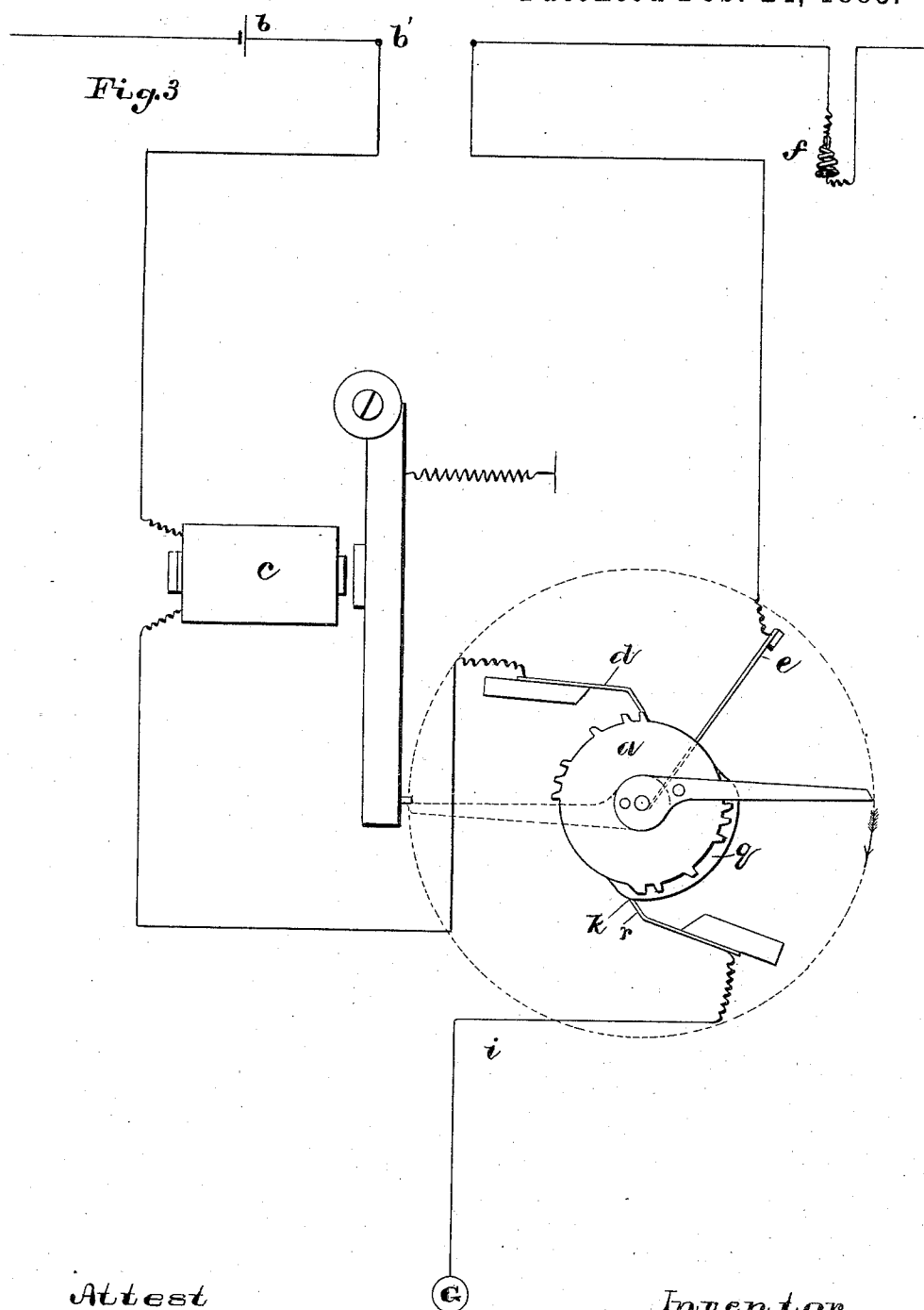
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FIRE ALARM SIGNAL BOX.

No. 313,040.

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Attest

Paul A. Stalup
Millard R. Bourne

Inventor

By his Attorney

John Young
George R. Barton

UNITED STATES PATENT OFFICE.

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

FIRE-ALARM SIGNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 313,040, dated February 24, 1885.

Application filed March 1, 1884. (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 invented a certain new and useful Improvement in Attachments for Break-Wheels of 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 specification.

My invention herein described relates to automatic fire-alarms; and it consists in an attachment to the break-wheel of the alarm-box.

In my application for United States Letters Patent filed May 21, 1883, I have described and claimed means for arresting the character-wheel before it has completed a whole revolution, in order that the circuit of the box may be left open after the signal has been sent in to the patrol-station, so that there may be no interference of signals from other boxes. This break-wheel or character-wheel is preferably constructed as described in said application, so that the number of the box may be indicated twice upon the register at the central office at each revolution. I have found that it not unfrequently happens that the circuit will be closed momentarily through a signal-box. The break-wheel is thus started; but as the circuit is immediately left open again only a single dot or dash will be indicated upon the register at the central station, and while this will indicate trouble it will not be sufficient to locate the box or building in which the trouble exists. The momentary closing of the circuit of a box is sometimes caused by a jar which shakes the mercury in a thermostat; or a cross may be made from any cause back of the break-wheel. My invention herein is designed to locate a box which has thus been accidentally turned on, while the signal may be distinguished from a signal caused by heating the thermostat.

My invention consists in providing means for completing a ground-connection in combination with the break-wheel, whereby the circuit of the box will be necessarily closed during a portion of its revolution, so that in

case the circuit has been momentarily closed the number of the box may be registered at the patrol-station once only, or a less number of times than in the case of a true alarm. The fault is thus located, while no confusion is caused between false and true alarms.

In the drawings, which are illustrative of my invention, Figure 1 is a front elevation of a fire-alarm provided with my attachment. Fig. 2 is a detailed view of my attachment applied to the break-wheel. Fig. 3 is a diagram showing a modification thereof.

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

The break-wheel *a* is operated, in the usual manner, by means of clock-work when the battery is closed through the electro-magnet, and the number of the box—in this instance 213—is sent in twice. As illustrated in Fig. 3, a battery, *b*, at the patrol-station is connected through the electro-magnet *c*, and thence to the circuit-spring *d* of the break-wheel, and thence ordinarily, as shown, through the break-wheel, and thence by any suitable connection, *e*, through one or more thermostats, *f*, and thence to ground. If, now, the circuit of the box should be closed only for an instant between the contact-piece or binding-post *g* and the ground, it is evident that the wheel will be set in motion, but that, as the circuit is opened again at once, the number of the box would not be sent into the patrol-station unless some other means were provided for closing the circuit. The means which I have provided, as shown in Figs. 1 and 2, consist of the arm or lever *g*, which is operated by the piece *h*, carried by the wheel, and thus serves to close the ground-circuit *i* at point *k* during about one-half of the revolution of the wheel, so that the number of the box will be sent in once, even though the ordinary circuit of the box through the thermostat might be left open.

The circuits of the box may be traced as follows: Beginning with the binding-post *b'*, with which the line from the patrol-station is connected, the circuit is closed through the electro-magnet *c*, and thence to the circuit-spring *d*, and thence through the break-wheel *a*, and thence through the metallic portions of the box to point *l*, and thence to the post *e*, which

is connected to the thermostats throughout the building in which the box is placed.

The usual switch, *m*, is provided for shunting out the box.

- 5 When a connection is made from post *e* to ground, the arm *n* of the character or break wheel is set in motion by the action of the clock-work. If the circuit remains closed from binding-post *e* to ground, the number of
10 the box will be sent in to the patrol-station twice, or as many times as the number is repeated upon the break-wheel. As shown in the drawings, the number 213 will be sent in twice. If, however, the circuit from the post
15 *e* should be closed to ground, or crossed momentarily, the box will be started, but no signal except a dot or dash would be registered at the patrol-station. In order that an accident of this kind may be located, I have provided the extra ground-connection *i*, which is
20 closed during a portion only of the time that the break-wheel is turning. Any convenient device may be used for closing and opening this ground-connection.
- 25 The lever *g* (shown in Figs. 1 and 2) may be attached to any of the older forms of box. As the stud *h* is brought under the semicircular portion of the said arm *g*, and the said stud comes against the convex side thereof,
30 said arm is turned upon its pivot, thus closing the circuit at *k* to the ground-connection *i*. In Fig. 3 I have shown a modification of my device, which consists in the cam-shaped piece *q*, provided upon the break-wheel, and the
35 contact-piece *r*, which comes against the said cam, closing the circuit of the box at point *k* to ground, through the connection *i*, as long as the contact between the cam and contact-piece remains closed.

Any other convenient mechanical device 40 can be used for closing the circuit to ground during a portion of the revolution of the break-wheel, in order that false alarms may not cause confusion.

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

1. In a fire-alarm circuit, a break-wheel provided with characters repeated thereon two or more times, the circuit-spring, clock-work, and starting mechanism, in combination with automatic ground-circuit-closing 50 mechanism, whereby the circuit is always closed to ground through the break-wheel during a portion of the revolution of the break-wheel, substantially as and for the purpose 55 specified.

2. The combination, substantially as hereinbefore set forth, with the break-wheel provided with characters repeated thereon, the fire-alarm-circuit spring, the clock-work, and 60 starting mechanism, of a normally-open ground-connection, and switching apparatus, whereby the fire-alarm circuit is automatically closed to said ground-connection during a portion of each revolution of the break- 65 wheel, whereby the number of the box will be sent in once only when the circuit has been momentarily closed so as to start the break-wheel accidentally.

In witness whereof I hereunto subscribe my 70 name this 25th day of January, A. D. 1884.

JOHN YOUNG.

Witnesses:

PAUL A. STALEY,
C. C. SHEPHERD.